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(54) **ELECTRONIC CIGARETTE ATOMIZER**

(71) Applicant: **SHENZHEN INFEITE TECHNOLOGY CO., LTD.**, Shenzhen (CN)

(72) Inventor: **LIQIAN CHEN**, Yiyang (CN)

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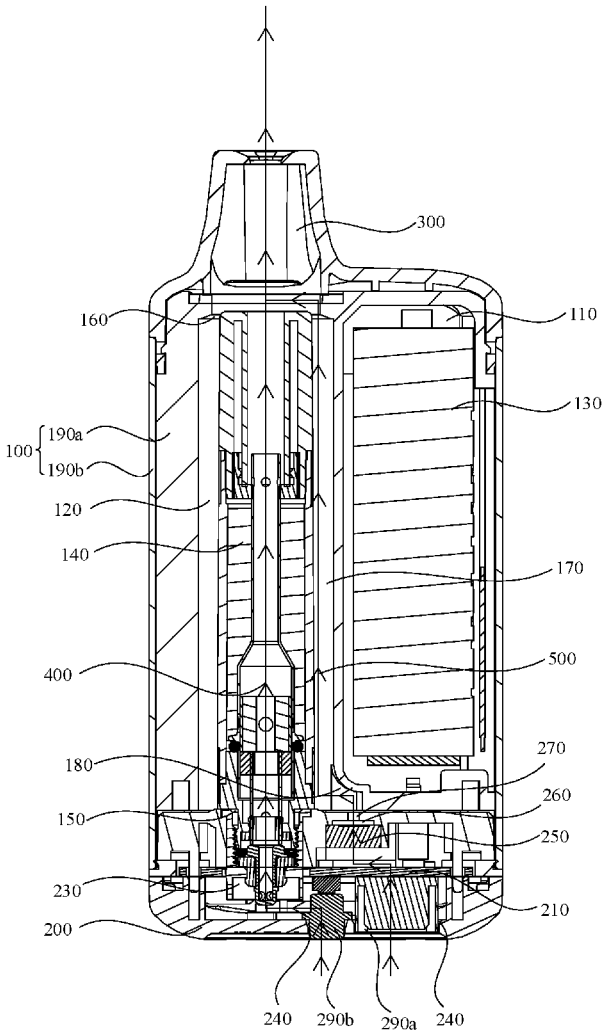
(57) **ABSTRACT**

An electronic cigarette atomizer includes a housing body, a cigarette holder, and a base. A battery bin and a cigarette cartridge bin are disposed in the housing body. A battery is detachably disposed in the battery bin. A first opening communicating with the battery bin and the cigarette cartridge bin is defined at a first end of the housing body. A second opening communicating with the cigarette cartridge bin is defined at a second end of the housing body. The cigarette holder communicating with the second opening is detachably disposed at one end, close to the second opening, of the housing body. A printed circuit board (PCB) is disposed in the base. An ejector pin is connected to the PCB. A mounting hole is further defined on the base. The mounting hole is configured to detachably mount a cigarette cartridge.



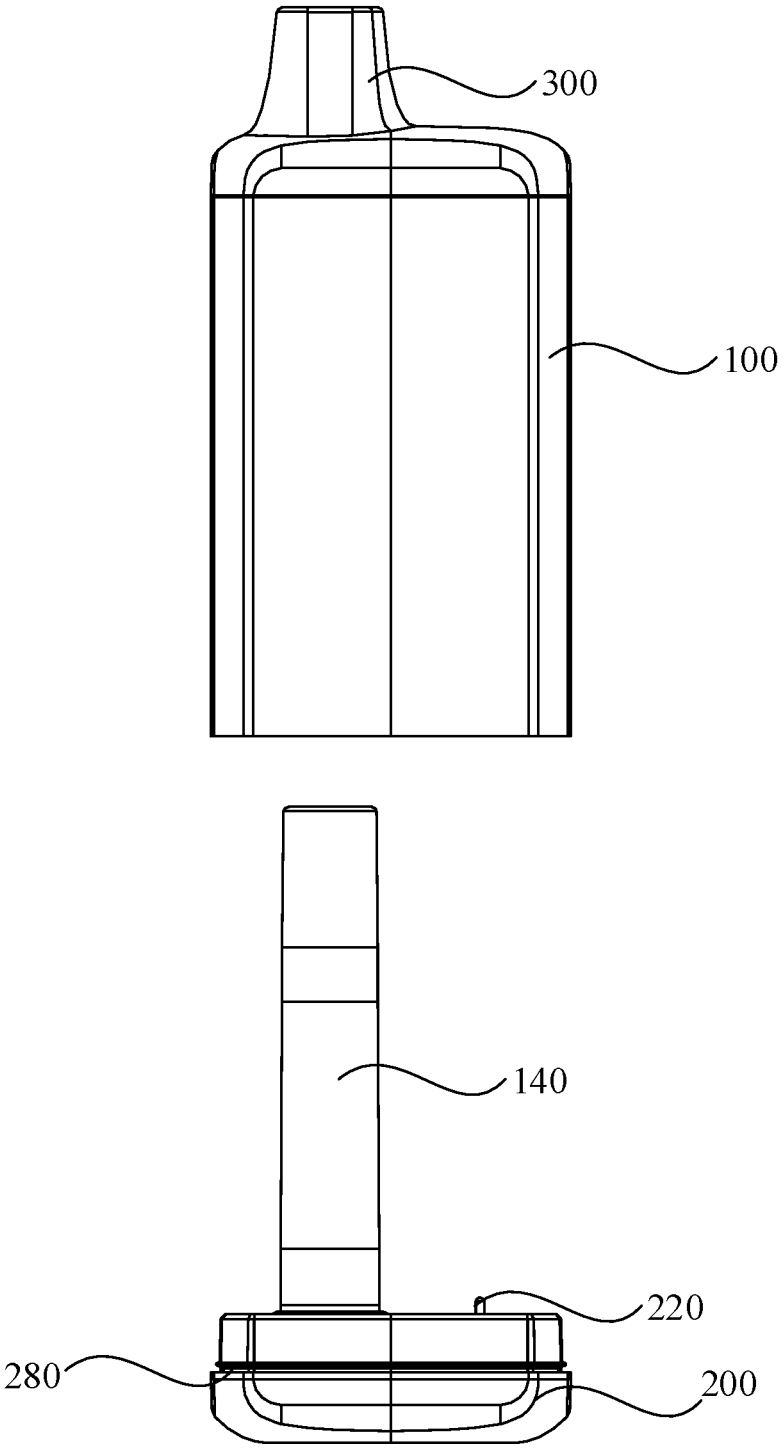


FIG. 1

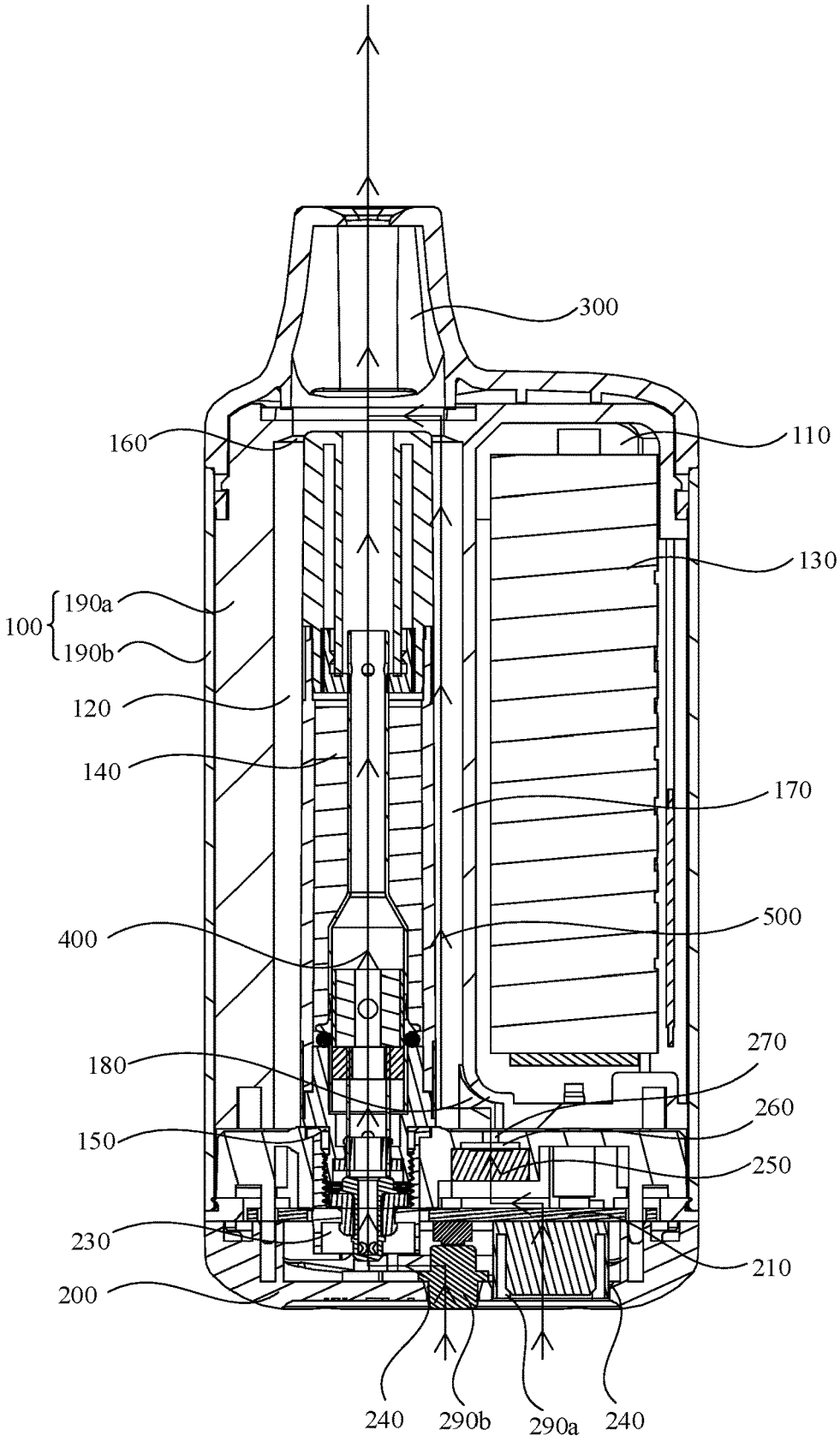

300
160
110
130
100
190a
190b
120
140
170
400
500
270
180
260
150
250
230
210
200
240
290b
290a
240

FIG. 2

ELECTRONIC CIGARETTE ATOMIZER

TECHNICAL FIELD

[0001] The present disclosure relates to a technical field of atomizers, and in particular to an electronic cigarette atomizer.

BACKGROUND

[0002] Electronic cigarettes are electronic products that mimics cigarettes and have same appearance, smoke, taste and feeling as the cigarettes. The electronic cigarettes are products that turns nicotine into vapor through atomization and other means for users to smoke.

[0003] Currently, on the market, cigarette cartridges are generally installed into atomizers of the electronic cigarettes, and when the users smoke, the atomizers control the cigarette cartridges to atomize to generate smoke. However, in order to facilitate installation and replacement of the cigarette cartridges, the cigarette cartridges are generally exposed outside the atomizers and may not be prevented from falling.

SUMMARY

[0004] The present disclosure provides an electronic cigarette atomizer to solve above technical problems.

[0005] The electronic cigarette atomizer includes a housing body, a cigarette holder, and a base.

[0006] A battery bin and a cigarette cartridge bin are respectively disposed in the housing body. A battery is detachably disposed in the battery bin. A first opening is defined at a first end of the housing body. The first opening is communicated with the battery bin and the cigarette cartridge bin. A second opening is defined at a second end of the housing body. The second opening is communicated with the cigarette cartridge bin.

[0007] The cigarette holder is disposed at one end, close to the second opening, of the housing body. The cigarette holder is communicated with the second opening.

[0008] A printed circuit board (PCB) is disposed in the base. An ejector pin is connected to the PCB. The ejector pin protrudes out of the base. A mounting hole is further defined on the base. The mounting hole is configured to mount a cigarette cartridge. An air inlet hole is further defined on the base. The air inlet hole is communicated with the mounting hole.

[0009] When the cigarette cartridge is disposed in the mounting hole, the cigarette cartridge is in contact with the PCB.

[0010] When the base is disposed at one end, close to the first opening, of the housing body, the ejector pin is in contact with the battery, and the cigarette cartridge is just located in the cigarette cartridge bin.

[0011] According to the electronic cigarette atomizer, the base and the housing body are detachably disposed, and the mounting hole is defined on the base to detachably mount the cigarette cartridge, so as to fix the cigarette cartridge. The cigarette cartridge bin is disposed in the housing body to contain the cigarette cartridge, so as to hidden and protect the cigarette cartridge. Therefore, according to above mode, the cigarette cartridge is fixed through the base, and the cigarette cartridge is protected through the housing body, so that the cigarette cartridge is conveniently replaced and is further prevented from falling off.

[0012] Furthermore, a magnet is disposed on the housing body and/or the base. The base is detachably connected to the housing body through the magnet.

[0013] Furthermore, a cavity is defined in the base. The cavity is communicated with the air inlet hole and the mounting hole. The electronic cigarette atomizer further includes a microphone. The microphone is disposed in the cavity. The microphone is electrically connected to the PCB. The microphone is configured to sense airflow entering the air inlet hole.

[0014] Furthermore, a mounting groove is defined in the cavity of the base. The microphone is disposed in the mounting groove. An air outlet hole is defined on the base. The air outlet hole is communicated with the mounting groove. When the base is disposed on the housing body, the air outlet hole is communicated with the first opening with respect to the cigarette cartridge bin. A part of the airflow entering from the air inlet hole is discharged out of the base from the air outlet hole after passing through the microphone. A gap is defined between a side wall of the cigarette cartridge and an inner wall of the cigarette cartridge bin. The gap is communicated with the first opening and the second opening.

[0015] Furthermore, an extending portion opening is further defined in a position, with respect to the cigarette cartridge bin, of the first opening. The extending portion opening is communicated with the cigarette cartridge bin. When the base is disposed on the housing body, the air outlet hole is communicated with the extending portion opening, and the airflow exhausted by the air outlet hole enters the gap through the extending portion opening.

[0016] Furthermore, the housing body includes a support and a housing. The battery bin and the cigarette cartridge bin are respectively disposed on the support. The cigarette cartridge bin is of a full-surrounding structure. The battery bin is of a semi-surrounding structure. The housing is sleeved on the support, and the housing is configured to surround the support.

[0017] Furthermore, a sealing ring is disposed on an outer wall of the base. When the base is disposed on the housing body, the sealing ring is located between the outer wall of the base and an inner wall of the housing.

[0018] Furthermore, a charging port and/or a key are further disposed on the base. The charging port and/or the key are respectively electrically connected to the PCB.

[0019] Furthermore, the air inlet hole is defined between an outer wall of the charging port and/or the key and the base.

[0020] Furthermore, the cigarette holder is connected to the housing body in a buckled mode.

BRIEF DESCRIPTION OF DRAWINGS

[0021] In order to more clearly illustrate technical solutions in embodiments of the present disclosure, drawings required in description of the embodiments or prior art are briefly described below. Obviously, the drawings in the following description are merely some embodiments of the present disclosure, and for a person with ordinary skill in the prior art, other drawings are obtained according to the drawings without creative efforts.

[0022] FIG. **1** is an exploded schematic diagram of a housing body and a base in an electronic cigarette atomizer according to one embodiment of the present disclosure.

[0023] FIG. **2** is a sectional schematic diagram of the electronic cigarette atomizer according to one embodiment of the present disclosure.

[0024] Reference number in the drawings: **100**. housing body; **110**. battery bin; **120**. cigarette cartridge bin; **130**. battery; **140**. cigarette cartridge; **150**. first opening; **160**. second opening; **170**. gap; **180**. extending portion opening; **190***a*. support; **190***b*. housing;

[0025] **200**. base; **210**. PCB; **220**. ejector pin; **230**. mounting hole; **240**. air inlet hole; **250**. microphone; **260**. mounting groove; **270**. air outlet hole; **280**. sealing ring; **290***a*. charging port; **290***b*. key; **300**. cigarette holder; **400**. atomizing airflow; **500**. switch airflow.

DETAILED DESCRIPTION

[0026] In order to make technical problems to be solved, technical solutions and beneficial effects of the present disclosure clearer, the present disclosure is further described in details below with reference to accompanying drawings and embodiments. It should be understood that the specific embodiments described herein are merely configured to explain the present disclosure, and are not intended to limit the present disclosure.

[0027] It should be noted that when an element is referred to as being "fixed to" or "disposed on" another element, it is directly on the other element or indirectly on the other element. When an element is referred to as being "connected to" another element, it is directly connected to the other element or indirectly connected to the other element.

[0028] It should be understood that an orientation or a positional relationship indicated by terms "length", "width", "upper", "lower", "front", "rear", "left", "right", "vertical", "horizontal", "top", "bottom", "inner", "outer", etc., is based on the orientation or the positional relationship shown in the accompanying drawings, and is merely for convenience of describing the present disclosure and simplifying description, rather than indicating or implying that an indicated apparatus or an element has a specific orientation, is constructed and operated in a specific orientation. Therefore, the terms cannot be understood as a limitation to the present disclosure.

[0029] In addition, terms "first" and "second" are merely configured to describe purposes and cannot be understood as indicating or implying relative importance or implicitly indicating the number of indicated technical features. Thus, the features defined with "first" and "second" may explicitly or implicitly include one or more of the features. In the description of some embodiments, "a plurality of" means two or more than two, unless specified otherwise.

[0030] The present disclosure provides an electronic cigarette atomizer. Electronic cigarettes are configured to atomize tobacco tar to generate smoke for users to smoke.

[0031] In some electronic cigarettes capable of replacing cigarette cartridges, smoke generated by working atomization of the cigarette cartridge is controlled through an electronic cigarette atomizer, including a battery, a PCB, etc., and after the tobacco tar in the cigarette cartridge is atomized, the cigarette cartridge should be replaced with a new cigarette cartridge.

[0032] Referring to FIGS. **1-2**, the electronic cigarette atomizer includes a housing body **100**, a cigarette holder **300**, and a base **200**. The cigarette holder **300** and the base **200** are respectively disposed on the housing body **100**.

[0033] Furthermore, a battery bin **110** and a cigarette cartridge bin **120** are disposed in the housing body **100**. A battery **130** is detachably disposed in the battery bin **110**. A first opening **150** is defined in a first end of the housing body **100**. The first opening **150** is communicated with the battery bin **110** and the cigarette cartridge bin **120**. A second opening **160** is defined in a second end of the housing body **100**. The second opening **160** is communicated with the cigarette cartridge bin **120**.

[0034] The embodiment further provides two first openings **150**, one of the two first openings **150** is communicated with the battery bin **110**, the other one of the two first openings **150** is communicated with the cigarette cartridge bin **120**, and sizes and shapes of the two first openings **150** are inconsistent.

[0035] Of course, in some embodiments, one first opening **150** is provided, and the first opening **150** is simultaneously communicated with the cigarette cartridge bin **120** and the battery bin **110**.

[0036] The cigarette holder **300** is disposed at one end, close to the second opening **160**, of the housing body **100**. When the cigarette holder **300** is disposed on the housing body **100**, a channel in the cigarette holder **300** is communicated with the second opening **160**.

[0037] The cigarette holder **300** and the housing body **100** are connected through buckles.

[0038] A PCB (Printed Circuit Board) **210** is disposed in the base **200**. An ejector pin **220** is disposed on the PCB **210**. The ejector pin **220** protrudes out of the base **200**. In addition, a mounting hole **230** is defined on the base **200**. A cigarette cartridge **140** is detachably mounted in the mounting hole **230**. An air inlet hole **240** is further defined on the base **200**. The air inlet hole **240** is communicated with the mounting hole **230**.

[0039] The mounting hole **230** is a threaded through hole, and the cigarette cartridge **140** is detachably connected to the mounting hole **230** in a threaded connection mode.

[0040] Specifically, when the cigarette cartridge **140** is disposed in the mounting hole **230**, the cigarette cartridge **140** is in contact with the PCB **210**, and the PCB **210** controls opening or closing of the cigarette cartridge **140**.

[0041] When the base **200** is disposed at one end, close to the first opening **150**, of the housing body **100**, the ejector pin **220** is just in contact with the battery **130** in the battery bin **110**, and the cigarette cartridge **140** is just located in the cigarette cartridge bin **120**.

[0042] During actual use, first detaching the base **200** from the housing body **100**, and then connecting an air inlet end of the cigarette cartridge **140** to the mounting hole **230**, so that the cigarette cartridge **140** is fixed on the base **200** and is in contact with the PCB **210**. The cigarette cartridge **140** is in contact with the PCB **210** through conventional means, such as through positive and negative elastic needles, which is not described in details herein. Then, extending the cigarette cartridge **140** into the cigarette cartridge bin **120** in the housing body **100**, and the base **200** is connected to the housing body **100** to complete installation or replacement of the cigarette cartridge **140**.

[0043] When a user inhales, external airflow sequentially enters the cigarette cartridge **140** through the air inlet hole **240** and the mounting hole **230**, and smoke generated in the cigarette cartridge **140** is sucked by the user along with the airflow through the second opening **160** and the cigarette holder **300**.

[0044] According to the electronic cigarette atomizer, the base **200** and the housing body **100** are detachably disposed, and the mounting hole **230** is defined on the base **200** to detachably mount the cigarette cartridge **140**, so as to fix the cigarette cartridge **140**. The cigarette cartridge bin **120** is disposed in the housing body **100** to contain the cigarette cartridge **140**, so as to hidden and protect the cigarette cartridge **140**. Therefore, according to above mode, the cigarette cartridge **140** is fixed through the base **200**, and the cigarette cartridge **140** is protected through the housing body **100**, so that the cigarette cartridge **140** is conveniently replaced and is further prevented from falling off.

[0045] Furthermore, a detachable connection between the housing body **100** and the base **200** is specifically achieved by providing a magnet on the housing body **100** and/or the base **200**, where the magnet is not shown in the figures. The base **200** is detachably connected to the housing body **100** through the magnet, so that the base **200** is more convenient to disassemble.

[0046] Of course, in other embodiments, the base **200** and the housing body **100** are further detachably connected through threads or buckles.

[0047] Referring to FIG. **2**, a cavity is defined in the base **200**, and the cavity is respectively communicated with the air inlet hole **240** and the mounting hole **230**.

[0048] It can be understood that an interior of the base **200** is made into a cavity structure, on one hand, the PCB **210** is convenient to accommodate, on the other hand, the air inlet hole **240** is convenient to communicate with the mounting hole **230**, and an air channel does not need to be additionally disposed. The air inlet hole **240** and the mounting hole **230** are connected only through a structure such as the gap between the PCB **210** and an inner wall of the base **200**, which makes structure of the whole base **200** simpler.

[0049] Furthermore, the electronic cigarette atomizer further includes a microphone **250**. The microphone **250** is disposed in the cavity. The microphone **250** is electrically connected to the PCB **210**. The microphone **250** is configured to sense airflow entering the air inlet hole **240**.

[0050] When the user sucks, the external airflow enters the cavity through the air inlet hole **240**, and after the microphone **250** senses the airflow, the PCB **210** controls the cigarette cartridge **140** to work.

[0051] Furthermore, a mounting groove **260** is defined in the cavity of the base **200**. The microphone **250** is disposed in the mounting groove **260**. An air outlet hole **270** is defined on the base **200**. The air outlet hole **270** is communicated with the mounting groove **260**. When the base **200** is disposed on the housing body **100**, the air outlet hole **270** is communicated with the first opening **150** with respect to the cigarette cartridge bin **120**.

[0052] Specifically, a part of the airflow entering from the air inlet hole **240** is discharged out of the base **200** from the air outlet hole **270** after passing through the microphone **250** and enters the first opening **150**, and other airflow enters the cigarette cartridge **140** through the mounting hole **230**.

[0053] In addition, when the cigarette cartridge **140** is located in the cavity of the cigarette cartridge **140**, a gap **170** is reserved between a side wall of the cigarette cartridge **140** and an inner wall of the cigarette cartridge bin **120**. The gap **170** is communicated with the first opening **150** and the second opening **160**.

[0054] Specifically, the part of the airflow entering the air inlet hole **240** is discharged out of the base **200** from the air outlet hole **270** after passing through the microphone **250** and enters the gap **170** through the first opening **150**, and then the part of the airflow is discharged through the second opening **160**. The other airflow enters the cigarette cartridge **140** through the mounting hole **230**. Smoke generated in the cigarette cartridge **140** is discharged through the second opening **160**. Size and structure of the gap **170** are not limited herein, and the gap **170** only needs to meet requirements that the airflow can pass through.

[0055] It can be seen that, in the mode, the gap **170** is defined between the cigarette cartridge **140** and the inner wall of the cigarette cartridge bin **120** to enable the airflow to pass through, so that atomizing airflow **400** passing through the cigarette cartridge **140** and switch airflow **500** passing through the microphone **250** respectively flow out from two independent airflow channels. According to the mode, after the air channel in the cigarette cartridge **140** is blocked by the tobacco tar, the switch airflow **500** of the microphone **250** still flows out from the channel of the switch airflow **500** generated by the gap **170**, so that the microphone **250** further senses the airflow, and then the PCB **210** still controls the cigarette cartridge **140** to work to atomize the tobacco tar to open the blocked channel. In other words, the mode well ensures that the cigarette cartridge **140** cannot be blocked by the tobacco tar, and the atomizer will not stop working after the air channel in the cigarette cartridge **140** is blocked by the tobacco tar.

[0056] Furthermore, in order to enable the airflow discharged by the air outlet hole **270** to enter the gap **170** and guarantee smoothness of the switch airflow **500**. An extending portion opening **180** is further extended to one side of a position, with respect to the cigarette cartridge bin **120**, of the first opening **150**. The extending portion opening **180** is communicated with the cigarette cartridge bin **120**.

[0057] Specifically, when the base **200** is disposed on the housing body **100**, the air outlet hole **270** is communicated with the extending portion opening **180**, and the airflow exhausted by the air outlet hole **270** enters the gap **170** through the extending portion opening **180**.

[0058] Referring to FIG. **2**, the housing body **100** includes a support **190***a* and a housing **190***b*. The battery bin **110** and the cigarette cartridge bin **120** are respectively disposed on the support **190***a*. The housing **190***b* is sleeved on the support **190***a*, and the housing **190***b* is configured to surround the support **190***a*.

[0059] According to the above mode, the housing body **100** is divided into the independent support **190***a* and the independent housing **190***b*, on one hand, processing of structures such as the battery bin **110**, a cabin of the cigarette cartridge **140**, the first opening **150**, and the second opening **160** are facilitated, and on the other hand, integrity of the housing body **100** with the cigarette holder **300** and the base **200** after installation is guaranteed.

[0060] Furthermore, the cigarette cartridge bin **120** and/or the battery bin **110** are disposed as semi-surrounding structures. On one hand, the semi-surrounding structures facilitate formation of the gap **170**, and on the other hand, the semi-surrounding structures facilitate installation of the battery **130**. Meanwhile, the semi-surrounding structures enable the battery bin **110** and the cigarette cartridge bin **120** to be compatible with the batteries **130** or the cigarette cartridges **140** of different sizes and models.

[0061] Referring to FIG. **2**, a sealing ring **280** is disposed on an outer wall of the base **200**. When the base **200** is

disposed on the housing body **100**, the sealing ring **280** is located between the outer wall of the base **200** and an inner wall of the housing **190***b*, which plays a role in sealing a joint of the base **200** and the housing body **100**, prevents oil leakage and prevents water or other impurities from entering the cavity. And the sealing ring **280** is located between the outer wall of the base **200** and the inner wall of the housing **190***b*, which plays a role in horizontally extruding the sealing ring **280**, and improves sealing effects.

[0062] Referring to FIG. **2**, a charging port **290***a* and/or a key **290***b* are further disposed on the base **200**. The charging port **290***a* and/or the key **290***b* are respectively electrically connected to the PCB **210**. The charging port **290***a* is configured to charge the battery **130**, and the key **290***b* is configured to control the PCB **210**.

[0063] Furthermore, the air inlet hole **240** is defined between an outer wall of the charging port **290***a* and/or the key **290***b* and the base **200**.

[0064] That is, a gap is defined between the outer wall of the charging port **290***a* and/or the key **290***b* and the base **200**, and the gap serves as the air inlet hole **240**. According to the structure, a through hole does not need to be additionally defined on the base **200** to serve as the air inlet hole **240**, which achieves a function of hiding the air inlet hole **240**.

[0065] The above descriptions are merely preferred embodiments of the present disclosure, and are not intended to limit the present disclosure. Any modification, equivalent replacement, improvement and the like made within spirit and principle of the present disclosure shall fall within a scope of protection of the present disclosure.

What is claimed is:

1. An electronic cigarette atomizer, comprising:

a housing body;

a cigarette holder; and

a base;

wherein a battery bin and a cigarette cartridge bin are respectively disposed in the housing body, a battery is detachably disposed in the battery bin, a first opening is defined at a first end of the housing body, the first opening is communicated with the battery bin and the cigarette cartridge bin, a second opening is defined at a second end of the housing body, the second opening is communicated with the cigarette cartridge bin;

the cigarette holder is disposed at one end, close to the second opening, of the housing body, the cigarette holder is communicated with the second opening;

a printed circuit board (PCB) is disposed in the base, an ejector pin is connected to the PCB, the ejector pin protrudes out of the base, a mounting hole is further defined on the base, the mounting hole is configured to mount a cigarette cartridge, an air inlet hole is further defined on the base, the air inlet hole is communicated with the mounting hole;

when the cigarette cartridge is disposed in the mounting hole, the cigarette cartridge is in contact with the PCB; and

when the base is disposed at one end, close to the first opening, of the housing body, the ejector pin is in contact with the battery, and the cigarette cartridge is just located in the cigarette cartridge bin.

2. The electronic cigarette atomizer according to claim **1**, wherein a magnet is disposed on the housing body and/or the base, and the base is detachably connected to the housing body through the magnet.

3. The electronic cigarette atomizer according to claim **1**, wherein a cavity is defined in the base, the cavity is communicated with the air inlet hole and the mounting hole; and

the electronic cigarette atomizer further comprises a microphone, the microphone is disposed in the cavity, the microphone is electrically connected to the PCB, and the microphone is configured to sense airflow entering the air inlet hole.

4. The electronic cigarette atomizer according to claim **3**, wherein a mounting groove is defined in the cavity of the base, the microphone is disposed in the mounting groove;

an air outlet hole is defined on the base, the air outlet hole is communicated with the mounting groove; when the base is disposed on the housing body, the air outlet hole is communicated with the first opening with respect to the cigarette cartridge bin; a part of the airflow entering from the air inlet hole is discharged out of the base from the air outlet hole after passing through the microphone; and

a gap is defined between a side wall of the cigarette cartridge and an inner wall of the cigarette cartridge bin, and the gap is communicated with the first opening and the second opening.

5. The electronic cigarette atomizer according to claim **4**, wherein an extending portion opening is further defined in a position, with respect to the cigarette cartridge bin, of the first opening; the extending portion opening is communicated with the cigarette cartridge bin, when the base is disposed on the housing body, the air outlet hole is communicated with the extending portion opening, and the airflow exhausted by the air outlet hole enters the gap through the extending portion opening.

6. The electronic cigarette atomizer according to claim **1**, wherein the housing body comprises a support and a housing;

the battery bin and the cigarette cartridge bin are respectively disposed on the support, the cigarette cartridge bin is of a full-surrounding structure, the battery bin is of a semi-surrounding structure; and

the housing is sleeved on the support, and the housing is configured to surround the support.

7. The electronic cigarette atomizer according to claim **6**, wherein a sealing ring is disposed on an outer wall of the base, and when the base is disposed on the housing body, the sealing ring is located between the outer wall of the base and an inner wall of the housing.

8. The electronic cigarette atomizer according to claim **1**, wherein a charging port and/or a key are further disposed on the base, and the charging port and/or the key are respectively and electrically connected to the PCB.

9. The electronic cigarette atomizer according to claim **8**, wherein the air inlet hole is defined between an outer wall of the charging port and/or the key and the base.

10. The electronic cigarette atomizer according to claim **1**, wherein the cigarette holder is connected to the housing body in a buckled mode.

11. The electronic cigarette atomizer according to claim **2**, wherein a cavity is defined in the base, the cavity is communicated with the air inlet hole and the mounting hole; and

the electronic cigarette atomizer further comprises a microphone, the microphone is disposed in the cavity,

the microphone is electrically connected to the PCB, and the microphone is configured to sense airflow entering the air inlet hole.

12. The electronic cigarette atomizer according to claim **2**, wherein a charging port and/or a key are further disposed on the base, and the charging port and/or the key are respectively electrically connected to the PCB.

13. The electronic cigarette atomizer according to claim **5**, wherein a charging port and/or a key are further disposed on the base, and the charging port and/or the key are respectively electrically connected to the PCB.

14. The electronic cigarette atomizer according to claim **7**, wherein a charging port and/or a key are further disposed on the base, and the charging port and/or the key are respectively electrically connected to the PCB.

* * * * *