The present invention relates to an electronic cigarette box including a box body and a cover body. The cover body is sheathed around the box body and connected to sidewalls of the box body by a rotating mechanism. The two opposite sidewalls of the cover body neighboring to the rotating mechanism dispose openings having a width matching the width of the corresponding sidewalls of the box body and configured for the cover body rotating relative to the box body. The structure of the electronic cigarette box of the present invention is simple, processing and assembly easily, and the structure is fashionable.
ELECTRONIC CIGARETTE BOX

CROSS-REFERENCE

[0001] This application is a U.S. continuation-in-part application under 35 U.S.C. § 111(a) claiming priority under 35 U.S.C. § 120 and § 365(c) to International Application No. PCT/CN2013/076391 filed May 29, 2013, the contents of which are incorporated by reference herein in their entirety for all intended purposes.

FIELD OF THE INVENTION

[0002] The present invention relates to electronic cigarettes, especially relate to an electronic cigarette box.

BACKGROUND OF THE INVENTION

[0003] A cover body of current electronic cigarette box hinges on one end of a shorter edge of the box body by a hinge mechanism. The hinge mechanism is usually composed of multiple components, such as using a pin to fix a matched rotation shaft and a spring in a shaft hole, or using a pin to fix a matched cam and a spring in the shaft hole. In use, a free end of the cover body separates from the box body by external force and rotates around the pin, then open the electronic cigarette box. Because the electronic cigarette box is small and exquisite, it is very difficult to manufacture such connection mechanism and needs more accessories, leading to increase manufacturing cost and assembly complicately. Meanwhile, the traditional hinge is unable to meet the personalized needs of more fashionable nowadays.

SUMMARY OF THE INVENTION

[0004] A technical problem of the present invention to be solved is to provide an electronic cigarette box, a connection mechanism for the box body and the cover body is simple, and is easy to manufacture and assemble.

[0005] To solve the above-mentioned technical problem, the present invention provides an electronic cigarette box including a box body and a cover body. The cover body is sheathed around the box body and connected to sidewalls of the box body by a rotating mechanism. The sidewall of the cover body or the box body disposes an opening. The bottom of the cover body is open to be sheathed in the box body, and the top of the box body is open and covered by the cover body. The cover body takes the rotating mechanism as center to coordinately rotate around the box body so as to make the box body or the cover body turning out or turning back from the opening, and then open or cover the top of the box body.

[0006] The box body and the cover body respectively includes two opposite long-edge sidewalls and two opposite short-edge sidewalls; when the cigarette box closing, the corresponding sidewalls of the cover body and the box body are aligned, the cover body covers the open on the top of the box body; when the cigarette box opening, the cover body turns away from the box body and is supported on the box body by a certain angle; the box body is a hard box body which is capable of supporting the weight and rotating of the cover body.

[0007] Furthermore, the rotating mechanism includes a circular boss and a circular groove which are correspondingly disposed on the opposite sidewalls of the cover body and the box body, the outer diameter of the circular boss is matched with the inner diameter of the circular groove, the circular boss extends into the circular groove and is rotatable in the circular groove.

[0008] Furthermore, the circular groove is a through groove or a blind groove.

[0009] Furthermore, the two long-edge sidewalls or the two short-edge sidewalls of the cover body and the box body coaxially displace the rotating mechanism; or the corresponding one long-edge sidewall of the cover body and the box body disposes the rotating mechanism; or the corresponding one short-edge sidewall of the cover body and the box body disposes the rotating mechanism.

[0010] Furthermore, the rotating mechanism is disposed in the middle of the electronic cigarette box.

[0011] Furthermore, an upper end surface of the box body is disposed as an arc surface to match the rotating arc of the cover body.

[0012] Furthermore, the opposite sidewalls of the cover body and the box body coordinately dispose a positioning mechanism to fix the cover body when the cover body covers the open end of the box body.

[0013] Furthermore, the positioning mechanism includes a convex point and a concave point which are correspondingly disposed on the opposite sidewalls of the cover body and the box body. The outer contour of the convex point fits the inner contour of the concave point to match and clamp.

[0014] Furthermore, the convex point and the concave point are correspondingly disposed on the long-edge sidewalls of the cover body and the box body respectively.

[0015] Furthermore, the box body has a fixing base disposed therein and used to fix the electronic cigarette. The fixing base defines a fixing hole for the electronic cigarette passing through.

[0016] Furthermore, the fixing base is a block mechanism which is disposed at an open of the upper of the box body.

[0017] Furthermore, at the bottom of the box body corresponding to the fixing hole disposes a gasket.

[0018] Furthermore, at least one long-edge sidewall of the box body neighboring to the open of the top of the box body disposes a concave cigarette-accommodating outlet corresponding to the fixing base and for taking and placing the electronic cigarette.

[0019] The rotating mechanism is a pivot mechanism or a hinge mechanism. The cover body takes the rotating mechanism as a center to rotate around the box body.

[0020] The cover body is sheathed on the external of the top of the box body, and the two opposite sidewalls of the cover body neighboring to the rotating mechanism dispose openings having a width matching the width of the corresponding sidewalls of the box body and configured for the cover body rotating relative to the box body; or the cover body is sheathed on the inner of the top of the box body, and the two opposite sidewalls of the box body neighboring to the rotating mechanism dispose opening having a width matching the width of the corresponding sidewalls of the cover body and configured for the cover body rotating away or rotating back to cover the open of the top of the box body.

[0021] The advantages of the embodiment of the present invention are: by coordinately disposing the matching connected circular boss and circular groove on the corresponding sidewalks of the cover body and the box body, and on the other two opposite sidewalks of the neighboring cover body correspondingly disposing an opening having a width matching the width of the corresponding sidewalks, then achieving the rela-
tive rotation of the cover body and the box body. On the opposite sidewalls of the cover body and box body coordinate to dispose convex point and concave point to achieve the positioning of the cover body. The opening and covering mode of the cover body and box body is novel, the connecting mechanism is simple, and both the manufacturing and assembly are easy.

[0022] Embodiments of the present invention will be further described in detail in the following drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0023] FIG. 1 is an isometric view of an electronic cigarette box according to a first embodiment of the present invention.

[0024] FIG. 2 is a sectional view of an electronic cigarette box according to the first embodiment of the present invention.

[0025] FIG. 3 is an isometric view of a cover body of an electronic cigarette box according to the first embodiment of the present invention.

[0026] FIG. 4 is a sectional view of the cover body of an electronic cigarette box according to the first embodiment of the present invention.

[0027] FIG. 5 is an isometric view of a box body of an electronic cigarette box according to the first embodiment of the present invention.

[0028] FIG. 6 is a sectional view of the box body of an electronic cigarette box according to the first embodiment of the present invention.

[0029] FIG. 7 is an exploded view of an electronic cigarette box according to the first embodiment of the present invention.

[0030] FIG. 8 is a state view of an electronic cigarette box rotating towards the left according to the first embodiment of the present invention.

[0031] FIG. 9 is a state view of an electronic cigarette box rotating towards the right according to the first embodiment of the present invention.

[0032] FIG. 10 is an isometric view of an electronic cigarette box according to a second embodiment of the present invention.

[0033] FIG. 11 is a sectional view of an electronic cigarette box according to the second embodiment of the present invention.

[0034] FIG. 12 is an isometric view of a cover body of an electronic cigarette box according to the second embodiment of the present invention.

[0035] FIG. 13 is a sectional view of the cover body of an electronic cigarette box according to the second embodiment of the present invention.

[0036] FIG. 14 is an isometric view of a box body of an electronic cigarette box according to the second embodiment of the present invention.

[0037] FIG. 15 is a sectional view of the box body of an electronic cigarette box according to the second embodiment of the present invention.

[0038] FIG. 16 is an exploded view of an electronic cigarette box according to the second embodiment of the present invention.

[0039] FIG. 17 is a state view of an electronic cigarette box rotating towards the left according to the second embodiment of the present invention.

[0040] FIG. 18 is a state view of an electronic cigarette box rotating towards the right according to the second embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

[0041] Referring to FIG. 1 to FIG. 18, embodiments of the present invention provides an electronic cigarette box, including a box body 10 with an upper end open and a cover body 20. The cover body 20 is sheathed around the external of the box body 10 and pivotally connects to a sidewall of the box body 10 by a rotating mechanism 30 to make the cover body 20 removably cover the open end of the box body 10. The two opposite sidewalls of the cover body 20 neighboring to the rotating mechanism 30 correspondingly dispose an opening 21 having a width matching with the width of the corresponding sidewalls of the box body 10 and configured for the cover body 20 rotating relative to the box body 10. The box body 10 is a hard box body, and can support the weight of and rotating of the cover body 20.

[0042] As a preferable embodiment, in the embodiment, the cross-section of the box body 10 is disposed as rectangular approximately. The box body 10 includes two opposite long-edge sidewalls 101, 103 (as the front and back of the box body 10) and two opposite short-edge sidewalls 102, 104 (as the left and right side). The bottom end 105 is closed and the upper end is open. Correspondingly, the cover body 20 also includes two opposite long-edge sidewalls (front and back) 201, 203, and two opposite short-edge sidewalls (left and right side) 202, 204. A top end 207 of the cover body 20 is closed to cover the open end of the box body 10, and a lower end is open to be sheathed around the upper end of the box body 10. The cover body 20 is sheathed around the box body 10 from the top end of the box body 10. The long-edge sidewalls 201, 203 of the cover body 20 correspond to the long-edge sidewalls 101, 103 of the box body 10. The short-edge sidewalls 202, 204 of the cover body 20 correspond to the short-edge sidewalls 102, 104 of the box body 10. The opposite long-edge sidewalls (101 and 201) and/or (102 and 202) of the cover body 20 and the box body 10 are rotatably connected by the rotating mechanism 30. The two opposite short-edge sidewalls 202, 204 of the cover body 20 respectively and correspondingly dispose an opening 21 having a width matching with the width of the short-edge sidewalls 102, 104 of the box body 10. When covering the cigarette box, the cover body 20 seals or closes the open end of the box body 10, and the corresponding sidewall of the box body 10 seals or closes the opening 21 of the cover body 20. The sidewalks of the cover body 20 are aligned with the corresponding sidewalks of the box body 10. When opening the cigarette box, the cover body 20 rotates around the rotating mechanism 30 as the rotating center toward the direction of the opening 21, then the cover body 20 is removed from the open end of the box body 10. The cover body 20 is supported on the box body 10 by a certain angle with the box body 10. The cover body 20 takes the rotating mechanism 30 as center to circular rotate around the box body 10. At the starting point, the cover body 20 covers on the top of the box body 10 and are aligned with each other; when rotating, the cover body 20 can be supported on the box body 10 by any angle. It is understood that, when the rotating mechanism 30 locates at a position of a half or less than a half of a height of the box body 10, the height of the cover body 20 is more than or equal to the half of height of the box body 10, then the cover body 20 can take the rotating mechanism 30 as center to rotate circumference of an angle degrees around the box body 10. Rotating at any location, the cover body 20 is always sheathed around the box body 10.

[0043] It is understood that, as an embodiment, the rotating mechanism 30 can also be disposed on the opposite short-
edge sidewalls of the box body 10 and the cover body 20. The two opposite long-edge sidewalls of the cover body 20 correspondingly dispose the opening 21 having a width matching the width of the corresponding long-edge sidewalls of the box body 10 and configured for the cover body 20 rotating relative to the box body 10.

Certainly, the electronic cigarette box can be designed as other shapes according to the design requirements, it is required to ensure that the electronic cigarette box can be covered or open by the rotating mechanism 30 when the cover body 20 is sheathed around the external of the box body 10.

In the embodiment, the rotating mechanism 30 includes a pivot mechanism cooperatively formed by a circular boss 31 and a circular groove 32 which are correspondingly disposed on the opposite sidewalls of the cover body 20 and the box body 10. The outer diameter of the circular boss 31 is matched with the inner diameter of the circular groove 32 and extends into the circular groove 32. The circular boss 31 rotates in the circular groove 32 to drive the cover body 20 to cover or open the box body 10.

Specifically, referring to FIG. 1 to FIG. 7, the long-edge wall of the cover body 20 extends toward the box body 10 and forms the circular boss 31. The opposite long-edge sidewall of the box body 10 correspondingly disposes the circular groove 32 having an inner contour matching with the outer contour of the circular boss 31. The circular boss 31 extends into the circular groove 32 and can rotate in the circular groove 32. In the embodiment, both the two opposite long-edge sidewalls of the cover body 20 dispose the circular boss 31, which are coaxially arranged. The two opposite short-edge sidewalls of the box body 10 correspondingly dispose the circular groove 32.

Referring to FIG. 10 to FIG. 16, as another embodiment, the circular boss 31 also can be formed by the two long-edge sidewalls of the box body 10 extending toward the cover body 20. The long-edge sidewalls of the cover body 20 correspondingly dispose the circular groove 32 which is matched with the circular boss 31 and used for the circular boss 31 extending and rotating.

In the embodiment, the circular groove 32 is disposed as a through groove to pass through the corresponding long-edge sidewalls of the cover body 20 or the box body 10. As an embodiment, when the wall thickness of the corresponding long-edge sidewalls of the cover body 20 or the box body 10 meets the design requirements, the circular groove 32 also can be a blind groove which is formed by the corresponding parts of the cover body 20 or the box body 10 recessed inwards.

Referring to FIG. 2 and FIG. 11, in the embodiment, the two long-edge sidewalls of the cover body 20 and the box body 10 coaxially disposes the rotating mechanism 30 to guarantee the stability of the rotating connection between the cover body 20 and the box body 10. In the specific implementation, an upper end surface of the box body 10 is disposed as an arc surface which matches the rotating arc of the cover body 20. The rotating mechanism 30 is preferably disposed in the middle of the electronic cigarette box to make the whole appearance of the electronic cigarette box more beautiful and fashionable.

In order to make the cover body 20 can firmly cover the open end on the upper end of the box body 10 and to make the electronic cigarette box normally accommodate the electronic cigarette 100, the opposite sidewalls of the cover body 20 and the box body 10 coordinately dispose a positioning mechanism which is used to fix the cover body 20. In the embodiment, the positioning mechanism includes a convex point 41 and a concave point 42 which are correspondingly disposed on the opposite sidewalls of the cover body 20 and the box body 10. The outer contour of the convex point 41 fits the inner contour of the concave point 42 for matching and clamping. In the embodiment, the two long-edge sidewalls of the cover body 20 all dispose the convex point 41, and the two long-edge sidewalks of the box body 10 correspondingly dispose the concave point 42. Because the depth of the contact surfaces between the convex point 41 and the concave point 42 is shallow, so the convex point 41 can separate from the concave point 42 by the action of a certain external force. Some other appropriate clamping mechanisms are also suitable for the positioning mechanism.

Referring to FIG. 7 and FIG. 16, in the embodiment, the electronic cigarette box also includes a fixing base 50 which is disposed in the box body 10. The fixing base 50 is used to fix the electronic cigarette 100. The fixing base 50 defines a fixing hole 51 along an in-and-out direction of the electronic cigarette 100 for the electronic cigarette 100 passing through. In the embodiment, the fixing base 50 is disposed as a block mechanism and is fixed at the open end of the box body 10. Meanwhile, the top end of the box body 10 is open, and preferably at least one long-edge wall 102 and/or 104 disposes a concave cigarette-accommodating outlet 11 corresponding to the fixing base 50 to facilitate electronic cigarette 100 taking and placing. The bottom in box body 10 disposes a gasket 60 corresponding to the fixing hole 51 and used to place the electronic cigarette 100.

Referring to FIG. 8, FIG. 9, FIG. 17 and FIG. 18, when installing, the cover body 20 is sheathed around the external of the box body 10 from the open end of the box body 10, and makes the circular boss 31 match and latch with the circular groove 32 to form pivot coordination, thus achieving the rotating connection between the cover body 20 and box body 10. At the state of the cover body 20 covering the box body 10, the convex point 41 matches and latchs with the concave point 42 to make the cover body 20 stably cover the box body 10. When using, rotating the cover body 20, the convex point 41 separates from the concave point 42 under an external force, then the cover body 20 rotates toward any one short-edge sidewall of the box body 10 with the aid of the rotating mechanism 30, and then open the box body 10. The electronic cigarette 100 can be taken out from the cigarette-accommodating outlet 11 of the box body 10 afterwards. When covering the electronic cigarette box, making the cover body 20 rotate and restore, the convex point 41 matches with the concave point 42 again, and the cover body 20 covers the open of the box body 10, thus achieves the covering of the electronic cigarette box.

It is understood that, the opening 21 can be two opposite opening disposed on the two opposite long-edge sidewalks 201 and 203 of the cover body 20, or two opposite opening disposed on the two short-edge sidewalks 202 and 204. Then the cover body 20 can rotate around the rotating mechanism 30 along positive or negative direction and towards the direction of the two openings 21 to open the electronic cigarette box, and remove the cover body 20 from the open end of the box body 10. The opening 21 can also be disposed on one of the two long-edge sidewalks 201 and 203, or the opening 21 is disposed on one of the two short-edge sidewalks 202 and 204. Then the cover body 20 rotates around...
the rotating mechanism 30 toward the direction of the opening 21 to open the electronic cigarette box, and remove the cover body 20 from the open end of the box body 10.

[0054] As other embodiments, the opening 21 also can be an opening disposed on the long-edge sidewalls 101 and 103 or the short-edge sidewalls 102 and 104 of the box body 10. Correspondingly, the sidewall of the cover body 20 seals the opening 21, and the cover body 20 also can be sheathed in an inner of the upper end of the box body 10. When the cigarette box covering, the cover body 20 seals the open end of the box body 10 and the openings on the sidewall of the box body 10. Rotating the cover body 20 around the rotating mechanism 30 toward the direction of the opening 21 makes the cover body 20 turn out from the opening 21, thus remove the cover body 20 from the open end of the box body 10, and then opens the cigarette box.

[0055] In a further embodiment, the rotating mechanism 30 can be other pivot mechanism or hinge mechanism to make the cover body 20 rotate away or cover relative to the box body 10. For example, both the corresponding sidewalls of the cover body 20 and the box body 10 dispose shaft holes which further matches with a pin or shaft, thus makes the cover body 20 rotate away or turn back and cover relative to the box body 10. The cover body 20 takes the rotating mechanism 30 as rotating center to centrally rotate with the box body 10.

[0056] It is understood that the electronic cigarette box described in the embodiment of the present invention is not only limited to the embodiments in FIG. 1 to FIG. 18. The technology characteristics of these embodiments can be combined with each other to form new embodiments.

[0057] Embodiments of the present invention is shown and described in the above-mentioned. Various improvement and modifications can be made to the embodiments by those skilled in the art without departing from the true spirit and scope of the disclosure. The scope of the present invention is defined by the appended claims and equivalents thereof.

What is claimed is:

1. An electronic cigarette box, comprising:
   a box body; and
   a cover body;
   wherein the cover body is sheathed on the box body and connected to sidewalls of the box body by a rotating mechanism, sidewalls of the cover body or the box body disposes an opening, the bottom of the cover body is open to be sheathed on the box body, the top of the box body is open and covered by the cover body, the cover body takes the rotating mechanism as center to rotate around the box body so as to make the box body or the cover body turning out or turning back from the opening, thus open or cover the top of the box body.

2. According to the electronic cigarette box in claim 1, wherein the box body and the cover body respectively includes two opposite long-edge sidewalls and two opposite short-edge sidewalls; when the cigarette box closing, the corresponding sidewalls of the cover body and the box body are aligned, the cover body covers the open top of the box body; when the cigarette box opening, the cover body turns away from the box body and is supported on the box body by a certain angle; the box body is a hard box body which is capable of supporting the weight and rotating of the cover body.

3. According to the electronic cigarette box in claim 1, wherein the rotating mechanism includes a circular boss and a circular groove which are correspondingly disposed on the opposite sidewalls of the cover body and the box body, the outer diameter of the circular boss is matched with the inner diameter of the circular groove, the circular boss extends into the circular groove and is rotatable in the circular groove.

4. According to the electronic cigarette box in claim 3, wherein the circular groove is a through groove or a blind groove.

5. According to the electronic cigarette box in claim 2, wherein the two long-edge sidewalls or the two short-edge sidewalls of the cover body and the box body coaxially dispose the rotating mechanism; or the corresponding one long-edge sidewall of the cover body and the box body dispose the rotating mechanism; or the corresponding one short-edge sidewall of the cover body and the box body dispose the rotating mechanism.

6. According to the electronic cigarette box in claim 1, wherein the rotating mechanism is disposed in the middle of the electronic cigarette box.

7. According to the electronic cigarette box in claim 1, wherein an upper end surface of the box body is disposed as an arc surface to match the rotating arc of the cover body.

8. According to the electronic cigarette box in claim 1, wherein the opposite sidewalls of the cover body and the box body coordinately dispose a positioning mechanism to fix the cover body when the cover body covers the open end of the box body.

9. According to the electronic cigarette box in claim 8, wherein the positioning mechanism includes a convex point and a concave point which are correspondingly disposed on the opposite sidewalls of the cover body and the box body, the outer contour of the convex point fits the inner contour of the concave point to match and latch.

10. According to the electronic cigarette box in claim 9, wherein the convex point and the concave point are correspondingly disposed on the long-edge sidewalls of the cover body and the box body respectively.

11. According to the electronic cigarette box in claim 1, wherein the box body has a fixing base disposed therein and used to fix an electronic cigarette, the fixing base defines a fixing hole for the electronic cigarette passing through.

12. According to the electronic cigarette box in claim 11, wherein the fixing base is a block mechanism, and is disposed at an open of the upper of the box body.

13. According to the electronic cigarette box in claim 11, wherein the fixing plate corresponding to the fixing hole defines a gasket.

14. According to the electronic cigarette box in claim 11, wherein at least one long-edge sidewall of the box body neighboring to the open of the top of the box body defines a concave cigarette-accommodating outlet corresponding to the fixing base and for taking and placing the electronic cigarette.

15. According to the electronic cigarette box in claim 1, wherein the rotating mechanism is a pivot mechanism or a hinge mechanism, the cover body takes the rotating mechanism as a center to rotate around the box body.

16. According to the electronic cigarette box in claim 1, wherein the rotates around the external of the top of the box body, and the two opposite sidewalls of the cover body neighboring to the rotating mechanism dispose openings having a width matching the width of the corresponding sidewalls of the box body and configured for the cover body rotation relative to the box body; or the cover body
is sheathed in the inner of the top of the box body, and the two opposite sidewalls of the box body neighboring to the rotating mechanism dispose openings having a width matching the width of the corresponding sidewalls of the cover body and configured for the cover body rotating away or rotating back to cover the open of the top of the box body.

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