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(54) **WIRELESS NETWORK CARD ANTENNA POSITION STRUCTURE**

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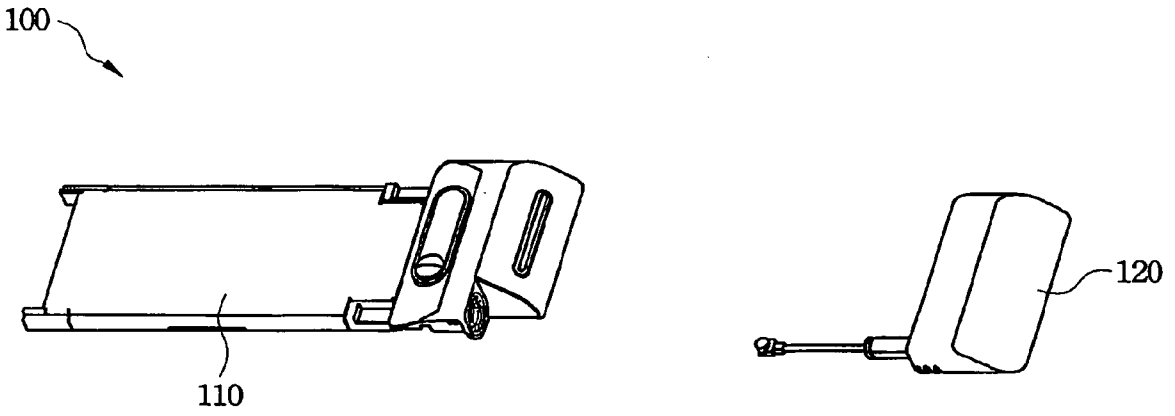
(57) **ABSTRACT**

A wireless network card antenna position structure is disposed between an antenna and a wireless network card body to adjust and fix a rotational angle between the antenna and the wireless network card body. The wireless network card antenna position structure includes a sunk position piece and a salient position piece. The sunk position piece includes several sunk points and the salient position piece includes at least a salient point. The salient point would couple with at least one of the sunk points to fix the rotational angle of the antenna when the rotational angle of the antenna is adjusted.



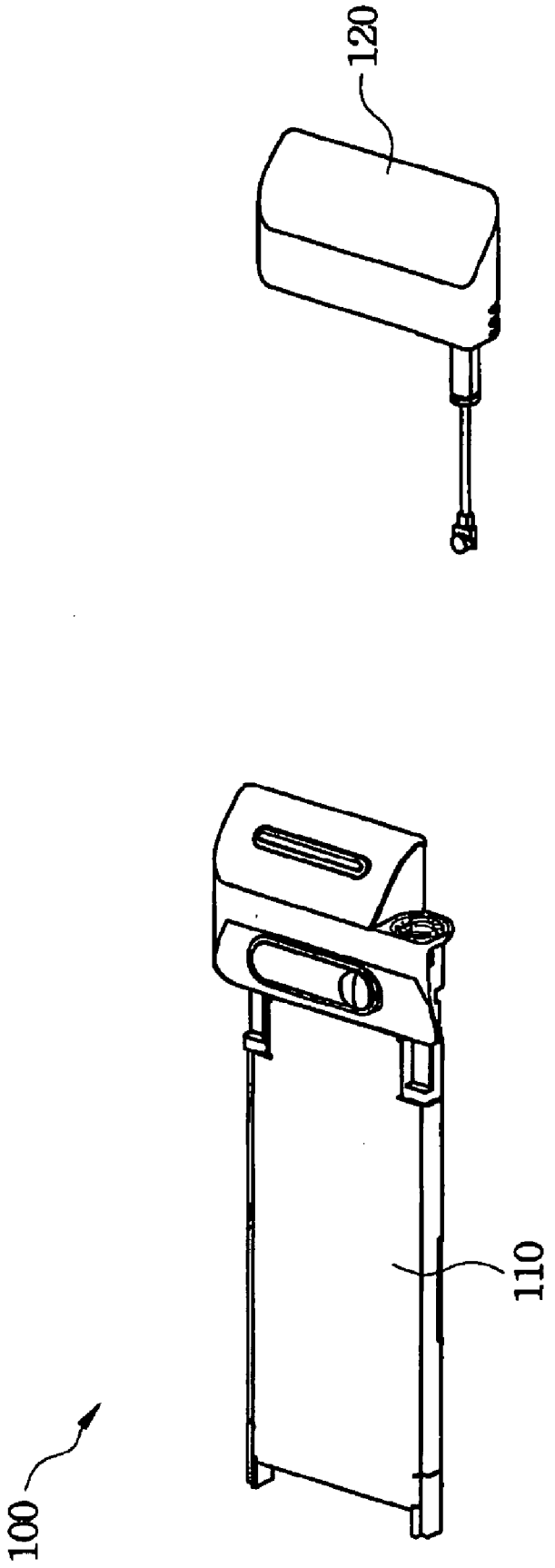


Fig. 1

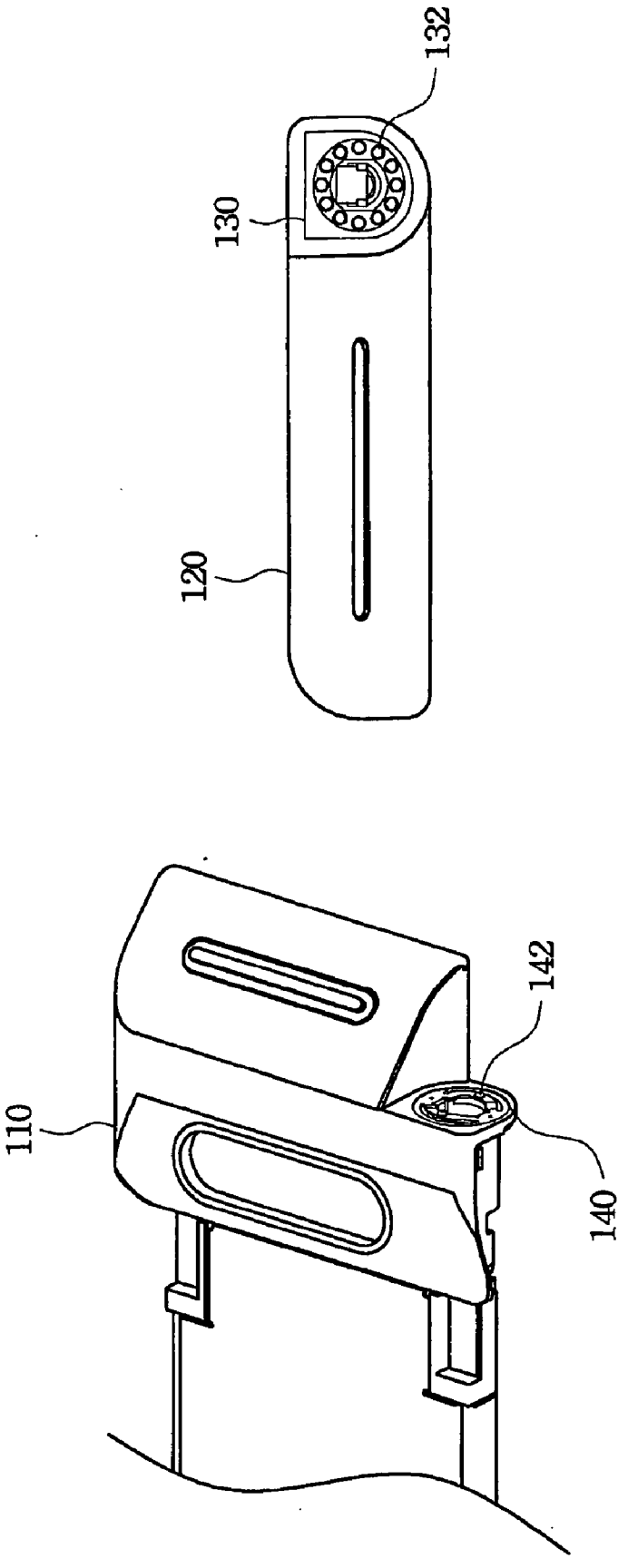


Fig. 2

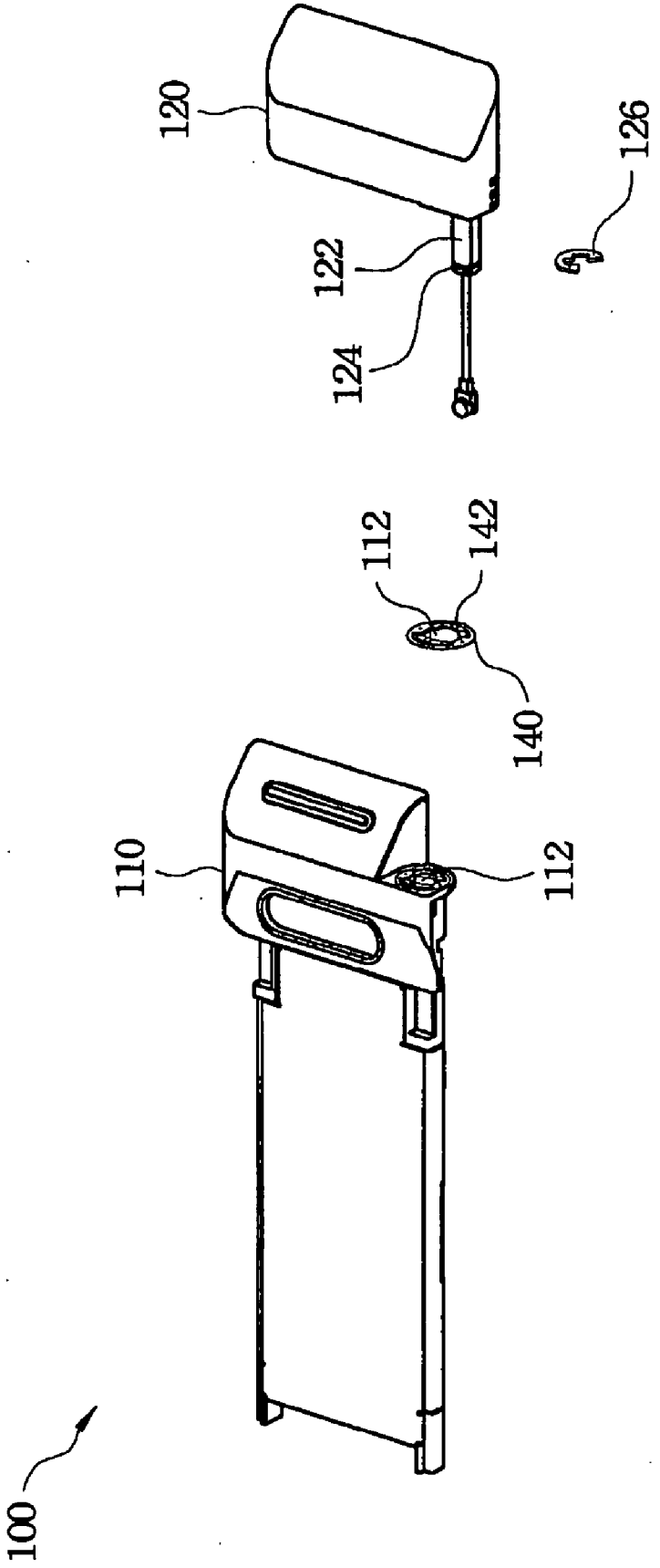


Fig. 3

WIRELESS NETWORK CARD ANTENNA POSITION STRUCTURE

RELATED APPLICATIONS

[0001] This application claims priority to Taiwan Application Serial Number 95218704, filed Oct. 23, 2006, which is herein incorporated by reference.

BACKGROUND

[0002] 1. Field of Invention

[0003] The present invention relates to a wireless network card. More particularly, the present invention relates to a wireless network card antenna position structure.

[0004] 2. Description of Related Art

[0005] The development of the Internet and the popularization of personal computers enable data from different places to be communicated. However, most of the current Internet infrastructure is connected with wires made of different materials, such as optical fibers. Thus, using wireless network cards eliminates the aforementioned problems, and creates a convenient communications environment.

[0006] An antenna is an important device in the wireless network card. An antenna rotational angle of the wireless network card can be adjusted with different places and different times to receive better signals. The conventional method for positioning the antenna at a fixed rotational angle is by using the frictional force between the plastic material of the antenna and the wireless network card body. However, attrition of the plastic material may reduce the frictional force between the antenna and the wireless network card body and the antenna cannot be positioned at stable angle.

[0007] For the forgoing reasons, there is a need for stably positioning the antenna of the wireless network card.

SUMMARY

[0008] The embodiment of the invention provides a wireless network card antenna position structure for positioning an antenna at a fixed rotational angle with respect to a wireless network card body. The wireless network card antenna position structure includes a sunk position piece and a salient position piece. The sunk position piece with a plurality of sunk points is fixed on a surface between the antenna and the wireless network card body. The salient position piece with at least one salient point is fixed on another surface between the antenna and the wireless network card body. The rotational angle is fixed by coupling at least one salient point and at least one of the sunk points when the rotational angle is adjusted.

[0009] The embodiment of the invention also provides a wireless network card. The wireless network card includes an antenna, a wireless network card body, a sunk position piece, an extended portion extended from the sunk position piece, and a salient position piece. The sunk position piece with a plurality of sunk points may be fixed on the antenna. The sunk points may be disposed surrounding the extended portion. The wireless network card body includes an antenna opening disposed facing the antenna. The extended portion may be inserted into the antenna opening. The salient position piece has a plurality of salient points and the salient points are disposed around the antenna opening. The rotational angle between the antenna and the wireless network card body is fixed by coupling the salient points and the sunk points when the rotational angle is adjusted.

[0010] It is to be understood that both the foregoing general description and the following detailed description are by examples, and are intended to provide further explanation of the invention as claimed.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011] The accompanying drawings are included to provide a further understanding of the invention, and are incorporated in and constitute a part of this specification. The drawings illustrate embodiments of the invention and, together with the description, serve to explain the principles of the invention. In the drawings,

[0012] FIG. **1** is an explosion drawing of an embodiment of a wireless network card of the invention;

[0013] FIG. **2** is a schematic drawing of an embodiment of the wireless network card antenna position structure of the invention; and

[0014] FIG. **3** is an explosion drawing of another embodiment of the wireless network card of the invention.

DESCRIPTION OF THE EMBODIMENTS

[0015] Reference will now be made in detail to the present embodiments of the invention, examples of which are illustrated in the accompanying drawings. Wherever possible, the same reference numbers are used in the drawings and the description to refer to the same or like parts.

[0016] Refer to FIG. **1**. FIG. **1** illustrates an explosion drawing of an embodiment of a wireless network card of the invention. The wireless network card **100** includes a wireless network card body **110** and an antenna **120**. A rotational angle between the wireless network card body **110** and the antenna **120** needs to be adjusted to fit different locations to receive better signals. Thus, there is a need for a wireless network card antenna position structure to position the antenna **120** and fix the rotational angle between the antenna **120** and the wireless network card body **110** when the rotational angle is adjusted.

[0017] Refer to FIG. **1** and FIG. **2** simultaneously. FIG. **2** is a schematic drawing of an embodiment of the wireless network card antenna position structure of the invention. The wireless network card antenna position structure for securing the antenna **120** at the rotational angle with respect to the wireless network card body **110** includes a sunk position piece **130** and a salient position piece **140**. The sunk position piece **130** and the salient position piece **140** are disposed between the antenna **120** and the wireless network card body **110**. The sunk position piece **130** is fixed on a surface between the antenna **120** and the wireless network card body **110**. The salient position piece **140** is fixed on another surface between the antenna **120** and the wireless network card body **110**. In this embodiment, the sunk position piece **130** is fixed on the antenna **120**, and the salient position piece **140** is fixed on the wireless network card body **110**. In another embodiment, the sunk position piece **130** may be fixed on the wireless network card body **110**, and the salient position piece **140** may be fixed on the antenna **120**. The sunk position piece **130** includes a plurality of sunk points **132**, and the salient position piece **140** includes at least one salient point **142**. The salient point **142** may couple with at least one of the sunk points **132** to fix the rotational angle when the rotational angle between the antenna **120** and the wireless network card body **110** is adjusted. The material of the sunk position piece **130** and the

salient position piece **140** may be a metal, which is stronger and more resistant to abrasions than plastic. Thus, the wireless network card antenna position structure life may be increased.

[0018] The sunk position piece **130** in the embodiment may be a copper pillar fixed in the antenna **120**. The sunk points **132** may be disposed circularly on a surface face the wireless network card body **110** of the sunk position piece **130**. An angle between the adjacent sunk points **132** is about 30 degrees.

[0019] Refer to FIG. **3**. FIG. **3** illustrates an explosion drawing of another embodiment of the wireless network card of the invention. There are two of the salient points **142** on the salient position piece **140**. The salient points **142** are disposed on two opposite sides of the salient position piece **140** for better balance. The material of the salient position piece **140** may be a beryllium-copper alloy. The salient position piece **140** may have a surface treatment, such as electroplating, for increasing smoothness of the salient points **142**.

[0020] Refer to FIG. **2** and FIG. **3** simultaneously. The antenna **120** includes an extended portion **122**. The extended portion **122** is extended from the copper pillar of the sunk position piece **130**. The sunk points **132** may surround the extended portion **122**. The wireless network card body **110** has an antenna opening **112** facing the antenna **120**. The extended portion **122** of the antenna **120** may be inserted into the antenna opening **112**. The material of the extended portion **122** may be a copper. The frictional force generated from the extended portion **122** in contact with a cylinder wall of the antenna opening **112** may stably retain the extended portion **122** in the antenna opening **112**.

[0021] The salient position piece **140** may also include the antenna opening **112**, and the salient points **142** are disposed around the antenna opening **112**. The extended portion **122** of the antenna **120** may have a flange **124**. The flange **124** is disposed on a section of the extended portion **122** in the wireless network card body **110** and the flange **124** is in contact with the antenna opening **112**. The extended portion **122** may further include a retaining ring **126** disposed in the flange **124**. The retaining ring **126** may be in contact with the cylinder wall of the antenna opening **112** to prevent the extended portion **122** departing from the antenna opening **112** of the wireless network card body **110**. The retaining ring **126** may be an E-shaped retaining ring or a C-shaped retaining ring.

[0022] The wireless network card antenna position structure may fix the rotational angle between the antenna and the wireless network card body by coupling the salient points and the sunk points when the rotational angle is adjusted.

[0023] It will be apparent to those skilled in the art that various modifications and variations can be made to the structure of the present invention without departing from the scope or spirit of the invention. In view of the foregoing, it is intended that the present invention cover modifications and variations of this invention provided they fall within the scope of the following claims and their equivalents.

What is claimed is:

1. A wireless network card antenna position structure for securing an antenna at a rotational angle with respect to a wireless network card body comprising:

a sunk position piece with a plurality of sunk points fixed on a surface between the antenna and the wireless network card body; and

a salient position piece with at least one salient point fixed on another surface between the antenna and the wireless network card body, wherein the rotational angle is fixed by coupling the salient point and at least one of the sunk points when the rotational angle is adjusted.

2. The wireless network card antenna position structure of claim **1**, wherein a material of the sunk position piece and the salient position piece is a metal.

3. The wireless network card antenna position structure of claim **2**, wherein the material of the sunk position piece is a copper.

4. The wireless network card antenna position structure of claim **2**, wherein the material of the salient position piece is a beryllium-copper alloy.

5. The wireless network card antenna position structure of claim **1**, wherein there are two of the salient points, and the salient points are disposed on two opposite sides of the salient position piece.

6. The wireless network card antenna position structure of claim **1**, wherein the sunk points are disposed circularly on the sunk position piece.

7. The wireless network card antenna position structure of claim **6**, wherein an angle between the adjacent sunk points is about 30 degrees.

8. The wireless network card antenna position structure of claim **1**, wherein the sunk position piece is disposed on the antenna, the salient position piece is disposed on the wireless network card body, wherein the rotational angle between the antenna and the wireless network card body is fixed by coupling the salient position piece and the sunk position piece.

9. The wireless network card antenna position structure of claim **1**, wherein the sunk position piece is disposed on the wireless network card body, the salient position piece is disposed on the antenna, wherein the rotational angle between the antenna and the wireless network card body is fixed by coupling the salient position piece and the sunk position piece.

10. A wireless network card comprising:

an antenna;

a sunk position piece fixed on the antenna comprising a plurality of sunk points;

an extended portion extended from the sunk position piece, wherein the sunk points are disposed surrounding the extended portion;

a wireless network card body having an antenna opening disposed facing the antenna, the extended portion inserted in the antenna opening; and

a salient position piece fixed on the wireless network card body having the antenna opening, wherein the salient position piece comprises a plurality of salient points and the salient points are disposed around the antenna opening,

whereby a rotational angle between the antenna and the wireless network card body is fixed by coupling the salient points and the sunk points when the rotational angle is adjusted.

11. The wireless network card of claim **10**, wherein a material of the sunk position piece and the salient position piece is a metal.

12. The wireless network card of claim **11**, wherein the material of the sunk position piece is a copper.

13. The wireless network card of claim **11**, wherein the material of the salient position piece is a beryllium-copper alloy.

14. The wireless network card of claim **10**, wherein there are two of the salient points, and the salient points are disposed on two opposite sides of the salient position piece.

15. The wireless network card of claim **10**, wherein the sunk points are disposed circularly on the sunk position piece.

16. The wireless network card of claim **10**, wherein an angle between the adjacent sunk points is about 30 degrees.

17. The wireless network card of claim **10**, wherein the extended portion comprises a flange, the extended portion is inserted into the wireless network card body, the flange is disposed on a section of the extended portion in the wireless network card body and the flange is in contact with the antenna opening.

18. The wireless network card of claim **10**, wherein the extended portion comprises a retaining ring disposed in the flange to prevent the extended portion departing from the wireless network card body.

19. The wireless network card of claim **18**, wherein the retaining ring is an E-shaped retaining ring.

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