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(54) **LATCHING ASSEMBLY AND ELECTRONIC DEVICE USING THE SAME**

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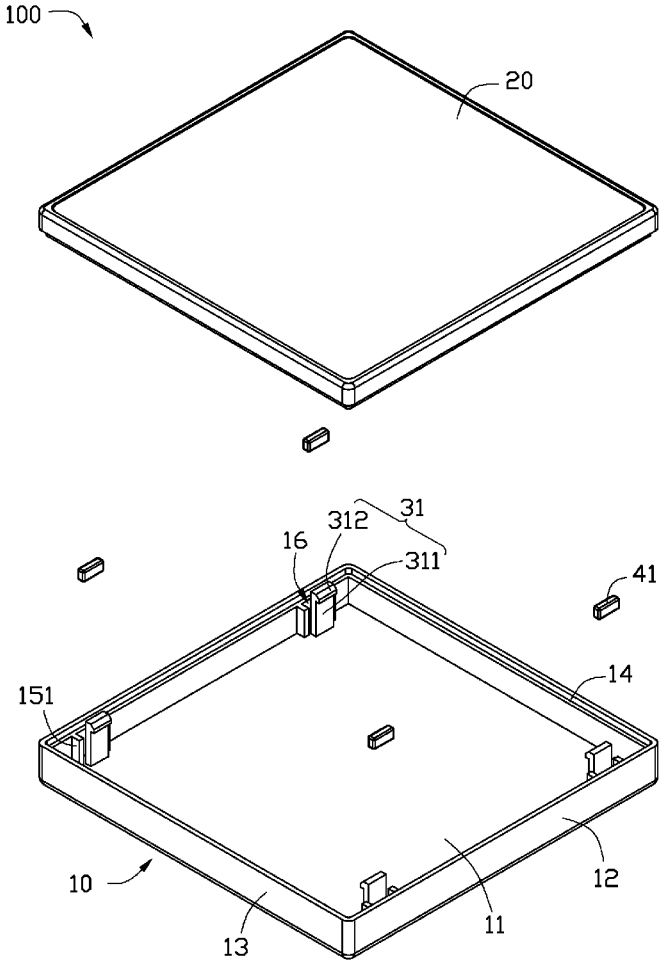
(57) **ABSTRACT**

A latching assembly is used in an electronic device. The electronic device includes a first housing and a second housing. The latching assembly includes at least a pair of latching elements and at least a pair of locking elements corresponding to the latching elements. Each latching element includes a hook located in the first housing, and a catch member defined in the second housing. Each locking element includes a movable member received in the first housing. Each hook clasps one of catch members to engage the first housing and the second housing. Then the movable member moves to the second housing to resist against the hook, thereby limiting the movement of the hook relative to the catch member. An electronic device using the latching assembly is also described.



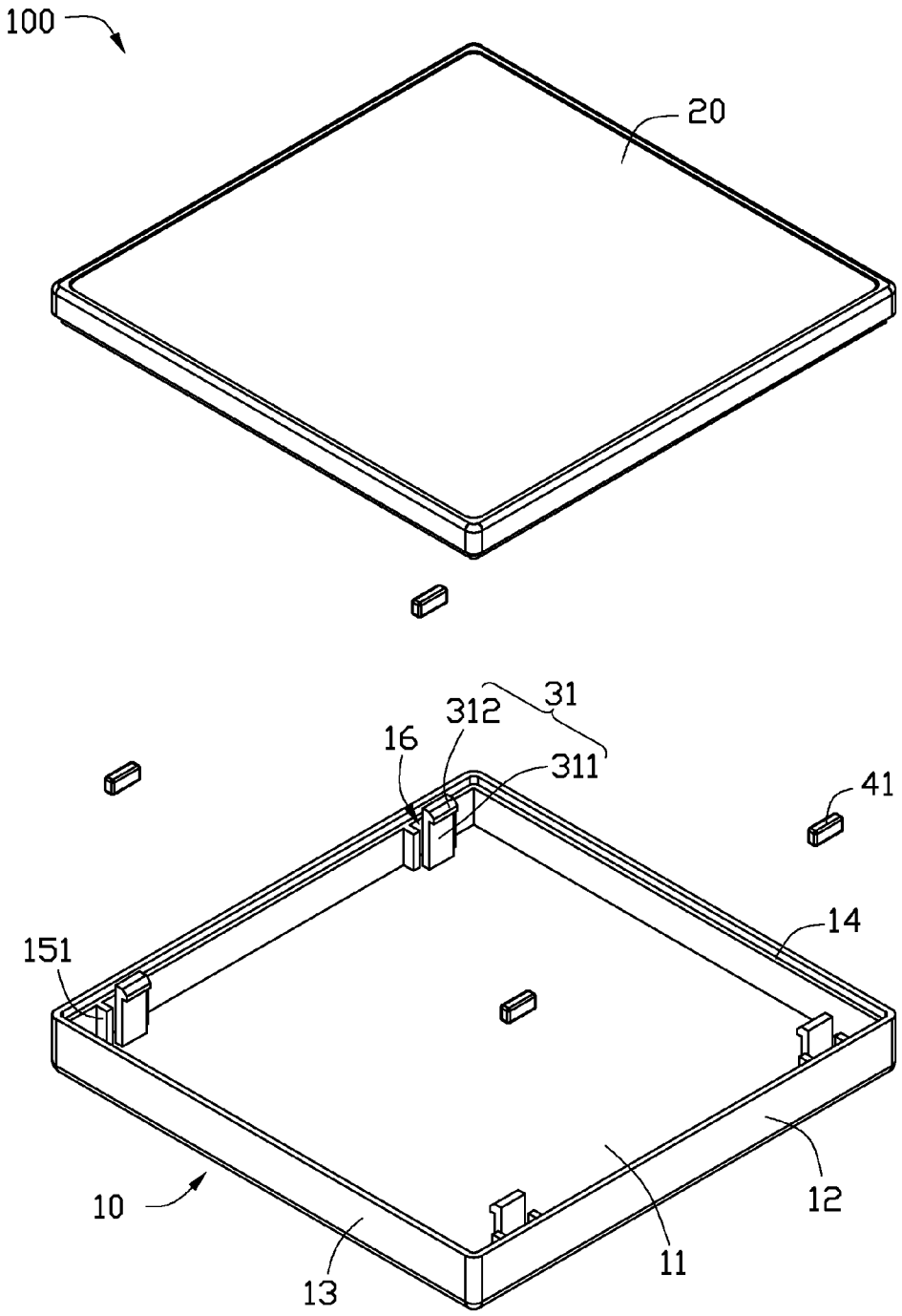


FIG. 1

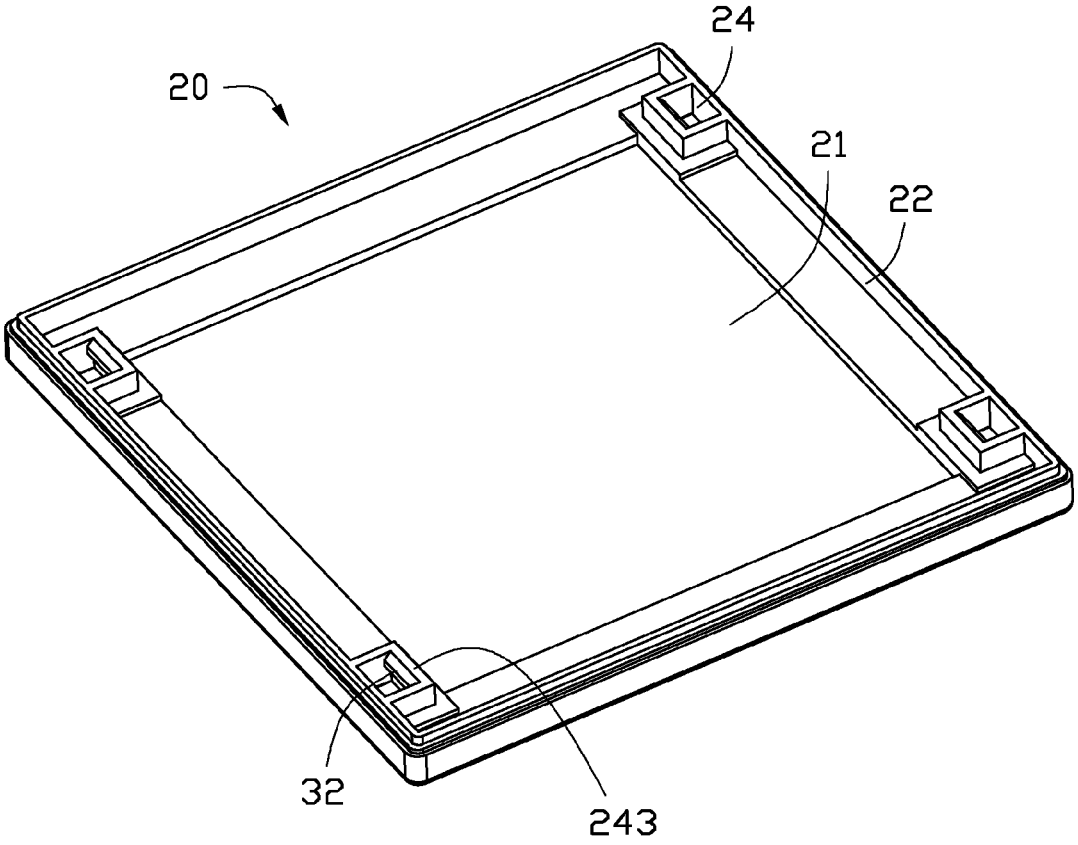


FIG. 2

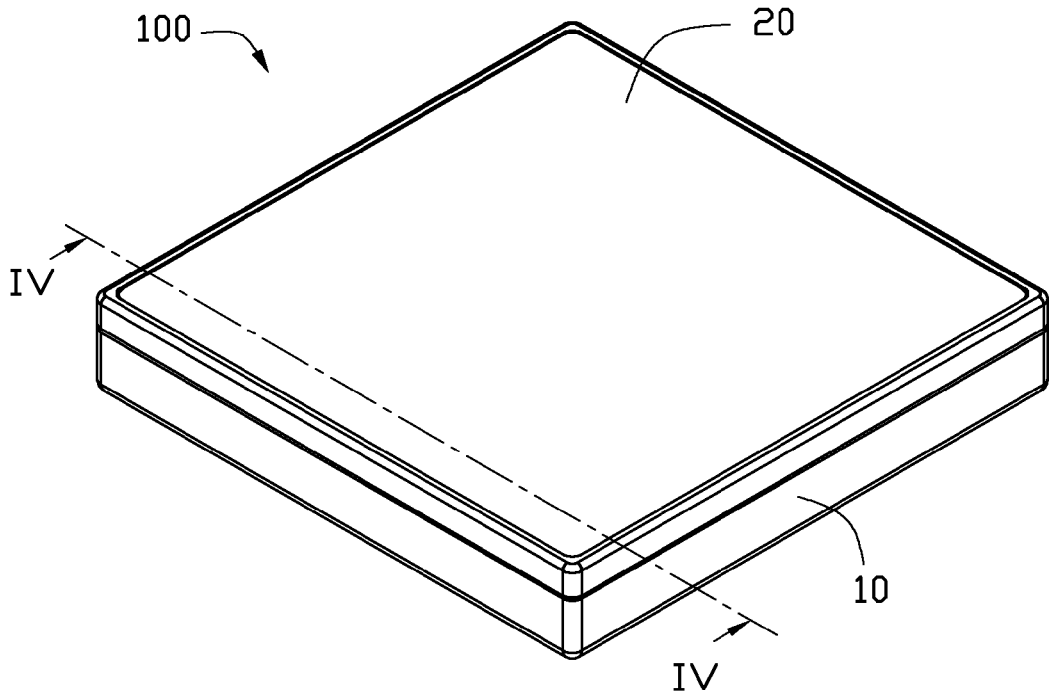


FIG. 3

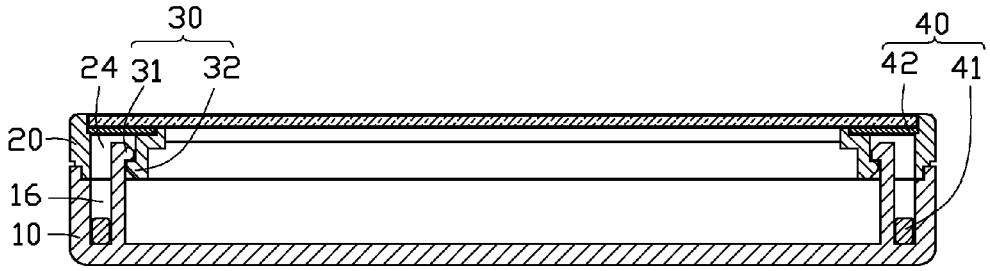


FIG. 4

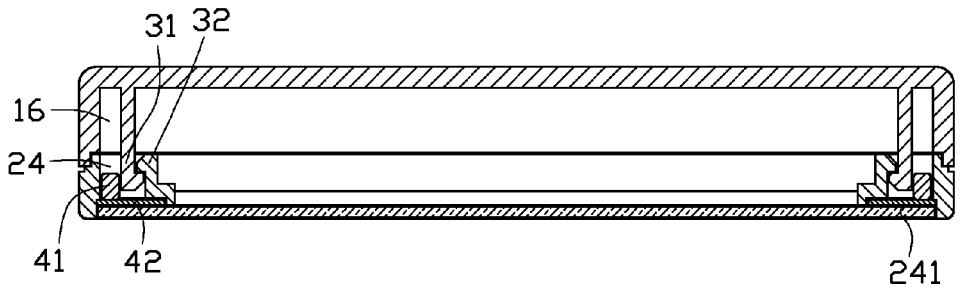


FIG. 5

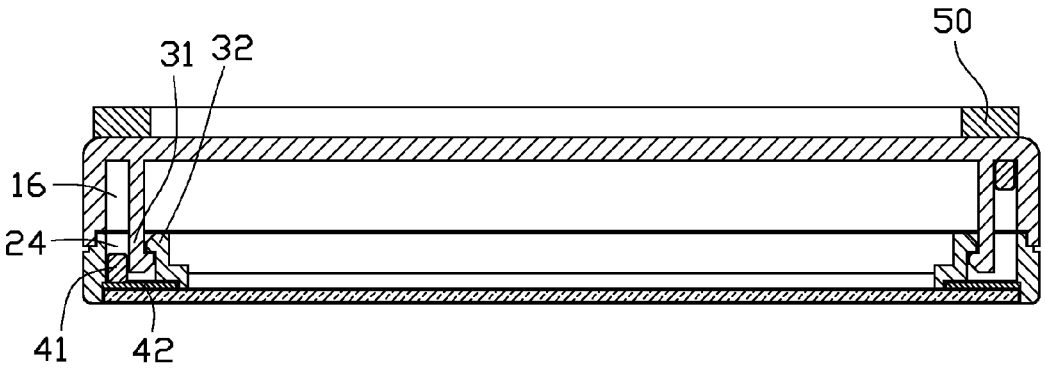


FIG. 6

LATCHING ASSEMBLY AND ELECTRONIC DEVICE USING THE SAME

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application is related to co-pending U.S. Patent Application (Attorney Docket No. US45896), entitled "LATCHING ASSEMBLY AND ELECTRONIC DEVICE USING THE SAME." Such application has the same assignee as the present application. The above-identified application is incorporated herein by reference.

BACKGROUND

[0002] 1. Technical Field

[0003] The present disclosure generally relates to latching assemblies, and particularly to a latching assembly used in an electronic device and the electronic device.

[0004] 2. Description of Related Art

[0005] Housings of electronic devices (such as mobile phones) are commonly assembled using screws or by latching structures. However, screws are difficult to be detached when the electronic devices need to be disassembled (to repair or change batteries for example). The latching structure commonly includes conventional hooks. The hooks are configured for engaging in slots of the housing to assemble the electronic device. However, the engagement between the hooks and the slots is prone to loosen when the electronic device is impacted or dropped, which can result in unwanted disassembly.

[0006] Therefore, there is room for improvement within the art.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] Many aspects of the disclosure can be better understood with reference to the following figures. The components in the figures are not necessarily drawn to scale, the emphasis instead being placed upon clearly illustrating the principles of the disclosure. Moreover, in the drawings, like reference numerals designate corresponding parts throughout the several views.

[0008] FIG. **1** is an exploded view of a latching assembly used in an electronic device in accordance with an exemplary embodiment, the electronic device includes a first housing and a second housing.

[0009] FIG. **2** is a schematic view of the second housing of FIG. **1**.

[0010] FIG. **3** is an assembly view of the electronic device of FIG. **1**.

[0011] FIG. **4** is a cross-sectional view of the electronic device of FIG. **3** along line IV-IV.

[0012] FIG. **5** is a schematic view of the electronic device of FIG. **4** with the latching assembly in a latched state.

[0013] FIG. **6** is a schematic view of disassembling the latching assembly of FIG. **5** using magnets.

DETAILED DESCRIPTION

[0014] FIGS. **1-3** show a latching assembly used in an electronic device **100** (for example, a mobile phone). The mobile phone is an exemplary application for the purposes of describing details of an exemplary embodiment of a latching assembly. The electronic device **100** includes a first housing **10** and a second housing **20**. The latching assembly incorporates the first housing **10** and the second housing **20**.

[0015] The housing **10** includes a bottom wall **11**, two parallel sidewalls **12**, and two parallel end walls **13**. The two sidewalls **12** and the two end walls **13** connect each other end-to-end. The housing **10** further includes four resisting panels **14** each abutting against the inner surfaces of the two sidewalls **12** and the two end walls **13**. At least a pair of blocks **151** protrudes from one of resisting panels **14** abutted the sidewalls **12**, adjacent to an end wall **13**. In the embodiment, the two resisting panels **14** respectively defines two pairs of blocks **151**.

[0016] Also referring to FIG. **4**, the latching assembly includes at least a pair of latching elements **30** and at least a pair of locking elements **40** corresponding to the latching elements **30**. In the embodiment, there are two pairs of latching elements **30** and two pairs of locking elements **40**. Each latching element **30** includes a hook **31** located on the bottom wall **11** of the first housing **10**, and a catch member **32** defined on the second housing **20**. Each hook **31** clasps a corresponding catch member **32** to engage the first housing **10** and the second housing **20**, simultaneously the locking elements **40** lock the hooks **31** and the catch members **32**.

[0017] FIG. **1** shows that each hook **31** includes a main portion **311** and a hooked portion **312** defined at the free end of the main portion **311**. Each hook **31** is located between a pair of blocks **151** and is perpendicular to the blocks **151**, thereby defining a receiving area **16**.

[0018] FIG. **2** shows that the second housing **20** includes a plate **21**, a peripheral wall **22** perpendicularly protruded from the plate **21**, and at least a pair of receiving spaces **24** for receiving the moving members **41**. In the embodiment, there are two pairs of receiving spaces **24** corresponding to the receiving areas **16**. Each receiving space **24** is located on the plate **21** and abuts against the peripheral wall **22**. Each receiving space **24** defines a lower wall **241** (see FIG. **5**) and a receiving sidewall **243** facing the peripheral wall **22**. Each catch member **32** is defined in a receiving space **24**, abutting the receiving sidewall **243**.

[0019] FIG. **4** shows that each locking element **40** includes a movable member **41** and a fixing member **42**. The fixing member **42** is fastened on the lower wall **241** and positioned between the lower wall **241** and the catch member **32**. Each movable member **41** is received in a corresponding receiving area **16**. The movable member **41** can move from the receiving area **16** into the receiving space **24** and attach to the fixing member **42** to resist against the hooked portion **312** of the hook **31**, thereby limiting the movement of the hook **31** relative to the catch member **32**, and locking the latching element **30** (see FIG. **5**). In the embodiment, the movable member **41** is a magnet, the fixing member **42** is a metal film or a metal sheet made of iron. The movable member **41** is attached to the fixing member **42** by magnetic attraction.

[0020] During assembly of the electronic device **100** (see FIG. **4**), first, each movable member **41** is received in a corresponding receiving area **16**. The second housing **20** is covered on the first housing **10** and pressed towards the first housing **10**, allowing each receiving area **16** to communicate a corresponding receiving space **24** and forming a cavity. Each hooked portion **312** of a hook **31** enter a corresponding receiving space **24** to catch a corresponding catch member **32**, thereby the first housing **10** and the second housing **20** are connected. Then the first housing **10** and the second housing **20** are rotated 180° (see FIG. **5**), making the movable members **41** move in the cavities into the receiving spaces **24** to be magnetically attracted by the fixing members **42**. At this time,

the movable members **41** resist against the hooked portions **312**, thereby limiting the movement of the hooks **31** relative to the catch members **32**, and locking the latching elements **30**. As a result, even if the electronic device **100** is impacted or dropped, the first housing **10** and the second housing **20** will not loosen from each other.

[0021] Referring to FIG. **6**, to disassemble the first housing **10** and the second housing **20**, an external magnet **50**, stronger than the magnets **41**, is placed on the first housing **10** corresponding to each receiving area **16** to attract the movable members **41** moving to the receiving areas **16** again, thereby unlocking the locking elements **40**, then the second housing **20** can be detached from the first housing **10**. The magnet **50** can be several magnets arranged in a frame about the same size as the first housing **10**, so that the frame is placed over the housings **10**, **20** and aligned with the sides so that the magnets are aligned with the cavities.

[0022] It is to be understood that, the fixing members **42** of the locking elements **40** can be omitted.

[0023] It is believed that the exemplary embodiment and its advantages will be understood from the foregoing description, and it will be apparent that various changes may be made thereto without departing from the spirit and scope of the disclosure or sacrificing all of its advantages, the examples hereinbefore described merely being preferred or exemplary embodiment of the disclosure.

What is claimed is:

1. A latching assembly used in an electronic device, the electronic device comprising a first housing and a second housing, the latching assembly comprising:

at least a pair of latching elements, each latching element comprising a hook located in the first housing, and a catch member defined in the second housing; and

at least a pair of locking elements corresponding to the latching elements, each locking element comprising a movable member received in the first housing;

wherein each hook clasps one of catch members to engage the first housing and the second housing, the movable member is capable of moving to the second housing to resist against the hook, thereby limiting the movement of the hook relative to the catch member.

2. The latching assembly as claimed in claim **1**, wherein each locking element further comprises a fixing member fastened in the second housing, the movable member is capable of moving to the second housing to attach to the fixing member, and resists against the hook.

3. The latching assembly as claimed in claim **2**, wherein each movable member is a magnet, each fixing member is a metal film or a metal sheet made of iron, the movable member is attached to the fixing member by magnetic attraction.

4. The latching assembly as claimed in claim **1**, wherein each hook comprises a main portion and a hooked portion defined at the free end of the main portion, each main portion configure with the first housing to define a receiving area, each movable member is movably received in a receiving area.

5. An electronic device, comprising:

a first housing;

a second housing corresponding to the first housing; and

a latching assembly, the latching assembly comprising:

at least a pair of latching elements, each latching element comprising a hook located in the first housing, and a catch member defined in the second housing; and

at least a pair of locking elements corresponding to the latching elements, each locking element comprising a movable member received in the first housing;

wherein each hook clasps one of catch members to engage the first housing and the second housing, the movable member is capable of moving to the second housing to resist against the hook, thereby limiting the movement of the hook relative to the catch member.

6. The electronic device as claimed in claim **5**, wherein each locking element further comprises a fixing member fastened in the second housing, each movable member is a magnet, each fixing member is a metal film or a metal sheet made of iron, the movable member is capable of moving to the second housing to magnetically attach to the fixing member, and resist against the hook.

7. The electronic device as claimed in claim **6**, wherein the first housing comprises two parallel sidewalls, and at least two panels respectively abut the inner surface of the sidewalls, at least a pair of blocks are protruded from each resisting panel, and towards the other resisting panel, each hook comprises a main portion and a hooked portion defined at the free end of the main portion, the main portion is located between a pair of blocks and is perpendicular to the blocks, thereby defining a receiving area, the movable member is movably received in the receiving area.

8. The electronic device as claimed in claim **7**, wherein the first housing further comprises a bottom wall and two parallel end walls, the sidewalls and the end walls are perpendicularly protruded from the bottom wall, the sidewalls and the end walls connect each other end-to-end.

9. The electronic device as claimed in claim **7**, wherein the second housing comprises at least a pair of receiving spaces corresponding to the receiving areas, each catch member is defined in a receiving space, each hooked portion of the hook clasps the catch member in the receiving space, each receiving area cooperates a corresponding receiving space to form a cavity for the movement of the movable member of the locking element.

10. The electronic device as claimed in claim **9**, wherein the second housing comprises a plate and a peripheral wall perpendicularly protruded from the plate, each receiving space is located on the plate and abuts the peripheral wall, each receiving space defines a lower wall and a receiving sidewall facing the peripheral wall, the fixing member is fastened on the lower wall and positioned between the lower wall and the catch member, each catching element abuts a receiving sidewall.

11. A latching assembly used in an electronic device, the electronic device comprising a first housing and a second housing, the latching assembly comprising:

at least a pair of latching elements, each latching element comprising a hook defined in the first housing, and a catch member defined in the second housing; and

at least a pair of locking elements corresponding to the latching elements, each locking element comprising a movable member received in the first housing;

wherein each hook clasps a corresponding catch member to connect the first housing and the second housing, each movable member is capable of moving to the second housing to resist against a corresponding hook to lock a corresponding latching element.

12. The latching assembly as claimed in claim **11**, wherein each locking element further comprises a fixing member fastened in the second housing, the movable member is capable

of moving to the second housing to attach to the fixing member, and resists against the hook.

13. The latching assembly as claimed in claim **12**, wherein each movable member is a magnet, each fixing member is a metal film or a metal sheet made of iron, the movable member is attached to the fixing member by magnetic attraction.

14. The latching assembly as claimed in claim **11**, wherein each hook comprises a main portion and a hooked portion defined at the free end of the main portion, each main portion configure with the first housing to define a receiving area, each movable member is movably received in a receiving area.

* * * * *