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Amended claims in accordance with Rule 137(2) EPC.

(54) **PACKAGE**

(57) A package includes a sleeve (200) and a tray (100). The sleeve (200) includes multiple walls (210) including a bottom wall (211), a top wall (212), and a plurality of side walls (213) connecting the top wall (212) and the bottom wall (211). The bottom wall (211), the top wall (212) and the side wall (213) cooperatively form an inner cavity (220) having at least one insertion opening (221). The tray (100) is slidably received in the inner cavity (220) via the insertion opening (221). The sleeve (200) has a rear locking slot (230). The tray (100) has a locking tab (110) elastically extending from the inner cavity (220) and being latched in the rear locking slot (230). The sleeve (200) further has a release tab (240) for pressing the locking tab (110) into the inner cavity (220), thereby detaching the locking tab (110) from the rear locking slot (230).

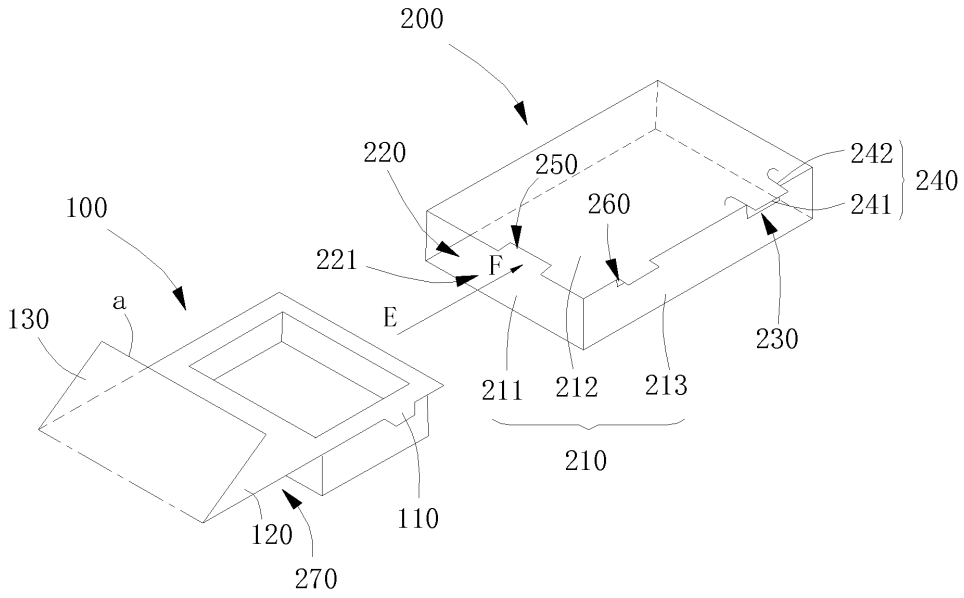

FIG. 1

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Description

TECHNICAL FIELD

[0001] The present disclosure relates to packing technologies, and more particularly relates to a package.

BACKGROUND

[0002] Package plays an extremely important role in the modern product packaging industry. A package is a container with a specific shape formed by cutting and folding raw materials according to packaging and storage requirements of different articles. A pull-out type package includes a tray and a sleeve. The tray is provided with a cavity for storing the article. The sleeve has an opening. The tray can be pulled out from the opening.

[0003] Since the tray and the sleeve adopt a pull-out type structure, the tray and the sleeve are easily separated during transportation or pick-and-place processes, thereby causing the articles stored therein to drop out. This makes the pull-out type package inconvenient to use.

SUMMARY

[0004] Accordingly, it is the object of the invention to provide a package preventing a tray from being separated from a sleeve easily, which has a simple structure and is convenient to operate. This object is achieved with the features of claim 1. The dependent claims relate to the advantageous embodiment of the invention.

[0005] A package includes a tray and a sleeve. The sleeve includes a plurality of walls including a bottom wall, a top wall, and a plurality of side walls connecting the top wall and the bottom wall. The bottom wall, the top wall, and the side walls cooperatively form an inner cavity having at least one insertion opening. The tray is slidably received in the inner cavity via the insertion opening. The sleeve is provided with a rear locking slot on a side wall. The tray is provided with a locking tab capable of elastically extending through the rear locking slot to lock the tray in place relative to the sleeve. The sleeve is further provided with a release tab used to press the locking tab into the inner cavity, so as to release the locking tab from the rear locking slot.

[0006] In one of the embodiments, the release tab comprises a free edge and two side edges connected to both ends of the free edge, and an end of the release tab away from the free edge is fixed to a wall.

[0007] In one of the embodiments, the side edges extend into and connect to the wall.

[0008] In one the embodiments, an anti-tear portion is provided at an end of the side edge connected to the wall.

[0009] In one of the embodiments, the anti-tear portion is a curved edge, and two anti-tear portions extend along opposite directions.

[0010] In one of the embodiments, the locking tab comprises a locking edge vertically extending from an edge of the tray, a transition edge connected to the locking edge and parallel to the edge of the tray, and a guiding edge connected to the transition edge and tilted to the edge of the tray, wherein the locking edge is configured to be engaged by the rear locking slot.

[0011] In one of the embodiments, the locking tab is a right trapezoid shaped, the locking edge is the right-angled waist of the right trapezoid, and the guiding edge is the oblique waist of the right trapezoid.

[0012] In one of the embodiments, the sleeve is further provided with a front locking slot on the same sidewall that is more adjacent to the insertion opening relative to the rear locking slot.

[0013] In one of the embodiments, the top wall defines a finger-receiving notch adjacent to the insertion opening, the tray is provided with a pulling plate corresponding the finger-receiving notch, and after the tray is inserted into the sleeve, the pulling plate, the bottom wall, and two sidewalls cooperatively define an accommodation space for accommodating a finger.

[0014] In one of the embodiments, the tray further comprises a protection sheet, and an end of the protection sheet is rotatably connected to the plate, the other end of the protection sheet extends into the inner cavity and abuts against the top wall.

[0015] According to the above technical solution, the tray and the sleeve are mutually locked via the plug-in engagement of the rear locking slot and the locking tab, thereby preventing the tray from dropping from the sleeve, and the release tab can press the locking tab into the inner cavity so as to detach the locking tab from the rear locking slot; and the package has a simple structure and is convenient to operate; in addition, since children who use the package box for the first time may not know how to unlock the package box, the package of the present disclosure can prevent the children from taking items out of the box.

BRIEF DESCRIPTION OF THE DRAWINGS

[0016] The invention will be explained in more detail with reference to the drawings.

FIG. 1 is an exploded view of a package in a disassembled state in accordance with an embodiment;

FIG. 2 is an expanded view of the package of FIG. 1;

FIG. 3 is a perspective view of the package of FIG. 1 illustrating that a tray is assembled into a sleeve and locked therein;

FIG. 4 is a perspective view of the package of FIG. 3 illustrating that the tray is in an released state;

FIG. 5 is a perspective view of the package of FIG. 4 illustrating that the tray is pulled out a certain distance;

FIG. 6 is a perspective view of the package of FIG. 5 illustrating that a locking tab of tray extending out of the sleeve from a front locking slot;

FIG. 7 is a cross-sectional view illustrating that the tray and the sleeve are in the locked state;

FIG. 8 is a cross-sectional view illustrating that the tray and the sleeve are in the released state.

DETAILED DESCRIPTION OF THE EMBODIMENTS

[0017] In order to make the objects, technical solutions and advantages of the present application more clear, the present application will be further described in detail below with reference to the accompanying drawings and embodiments. It should be understood that the specific embodiments described herein are merely illustrative and are not intended to be limiting the present application.

[0018] It should be noted that when an element is referred to as being "fixed" or connected to another element, it can be directly fixed on or connected to the other element or the element can be indirectly fixed on or connected to the other element via one or more intermediate elements. Rather, when an element is referred to as being "directly fixed on" or "directly connected to" another element, then there is no intermediate element. The terms "vertical," "horizontal," "left," "right," and the like, as used herein, are for illustrative purposes only.

[0019] Unless the context clearly requires otherwise, throughout the description and the claims, the words "comprise," "comprising," and the like are to be construed in an inclusive sense as opposed to an exclusive or exhaustive sense; that is to say, in the sense of "including, but not limited to". Words using the singular or plural number also include the plural or singular number respectively. Additionally, the words "herein", "above", "below" and words of similar import, when used in this application, shall refer to this application as a whole and not to any particular portions of this application. When the claims use the word "or" in reference to a list of two or more items, that word covers all of the following interpretations of the word: any of the items in the list, all of the items in the list and any combination of the items in the list.

[0020] Referring to FIGS. 1 and 2, a package is provided in accordance with an embodiment. The package can be made of a material having a certain elasticity, such as cardboard, plastic plate, etc. The package includes a tray 100 and a sleeve 200. As shown in FIG. 1, the tray 100 and the sleeve 200 are in a disassembled state, where the tray 100 is pulled out of the sleeve 200. As shown in FIG. 2, the tray 100 and the sleeve 200 are both expanded. Dashed lines therein represent folding lines.

[0021] The sleeve 200 includes a plurality of walls 210. The walls 210 includes a bottom wall 211, a top wall 212, and a plurality of side walls 213 connecting the top wall 212 and the bottom wall 211. The bottom wall 211, the top wall 212, and the side wall 213 cooperatively form an inner cavity 220. The sleeve 200 defines an insertion opening 221 at a front end thereof for allowing an insertion of the tray 100. The tray 100 can be inserted into the inner cavity 220 from the insertion opening 221 in a drawer-like manner.

[0022] The sleeve 200 is provided with a rear locking slot 230 on a side wall 213. The tray 100 is provided with an elastic locking tab 110. When the tray 100 is inserted into a closed position inside the sleeve 200, the locking tab 110 is engaged with the rear locking slot 230 to lock the tray 100 in place relative to the sleeve 200. During the insertion of the tray 100, the locking tab 110 can be bent or deformed to a certain extent until the tray 100 moves to the closed position inside the sleeve 200 and the locking tab 110 extends through the rear locking slot 230.

[0023] The sleeve 200 further includes a release tab 240. The locked tray 100 is releasable by applying a suitable amount of pressure onto the release tab 240. Referring to FIGS. 7 and 8, when releasing the tray 100, the release tab 240 can be pressed or extruded to have an elastic deformation. The elastic deformation of the release tab 240 causes an elastic deformation of the locking tab 110 to press or extrude the locking tab 110 into the inner cavity 220, so as to detach the locking tab 110 from the rear locking slot 230. Thus, the tray 100 is released and can be pulled outward to provide access to package contents.

[0024] The tray 100 and the sleeve 200 can be locked via an engagement between the rear locking slot 230 and the locking tab 110, thereby preventing the tray 100 from dropping from the sleeve 200. The release tab 240 can be pressed or extruded to cause the locking tab 110 to retract into the inner cavity 220, thereby releasing the tray 100 from the sleeve 200. The structure of the package is simple and the locking and releasing operations are convenient.

[0025] The release tab 240 and the sleeve 200 can be integrally formed. For example, referring to FIGS. 1 and FIG. 2, the release tab 240 can be formed by cutting a portion of a raw material that forms the sleeve 200, that is, a part of the raw material that forms the sleeve 200 is cut off via a cutting process. The remain material can be folded along the folding line of FIG. 2, thereby forming the sleeve 200 with the rear locking slot 230 and the release tab 240.

[0026] Alternatively, the release tab 240 and the sleeve 200 can be separately manufactured, for example, part of the sleeve 200 can be cut off firstly to form the rear locking slot 230, and then a manufactured release tab 240 can be bonded with the sleeve 200 via adhesive, glue, a thermocompression process, etc. When the release tab 240 and the sleeve 200 are integrally formed, the release tab 240 and the sleeve 200 can be of the same material, and the manufacture of the release tab 240 and the sleeve 200 can be completed by cutting, thereby making the manufacture thereof convenient. When the release tab 240 and the sleeve 200 are separately manufactured, different materials can be flexibly selected to manufacture the release tab 240 and the sleeve 200, respectively.

[0027] Referring to FIGS. 1 and 2, the release tab 240 includes a free edge 241 and two side edges 242 connected to both ends of the free edge 241. An end of the release tab 240 away from the free edge 241 is fixed to one wall 210. The end of the release tab 240 away from the free edge 241 can be fixed to the top wall 212, the side wall 213, or the bottom wall 211. When the end of the release tab 240 away from the free edge is fixed to the top wall 212, the rear locking slot 230 defines a notch on the top wall 212 and the side wall 213 respectively. When the end of the release tab 240 away from the free edge is fixed to the bottom wall 211, the rear locking slot 230 defines a notch on the side wall 213 and the bottom wall 211. When the end of the release tab 240 away from the free edge is fixed to the side wall 213, the rear locking slot 230 can define a notch on the side wall 213 and the top 212 respectively or define a notch on the side wall 213 and the bottom wall 211 respectively, which depends on an orientation of the release tab 240.

[0028] Referring to FIGS. 3 and 4, the end of the release tab 240 away from the free edge 241 is fixed to the top wall 212, and the side edges 242 extend into and connect to the top wall 212. When the release tab 240 is pressed, it is bent downward to press the locking tab 110. Since the release tab 240 is formed by cutting, when the release tab 240 is pressed, a cut portion between the release tab 240 and the top wall 212 is more likely to be torn, thus an anti-tear portion 2421 is provided at an end of each side edge 242 connected to the top wall 212. The anti-tear portion 2421 can be, for example, a curved edge. The curved edges 2421 of the two side edges 242 extend along opposite direction. The anti-tear portion 2421 can be a semicircular edge. When the release tab 240 is pressed, the anti-tear portion 2421 has a buffering effect, thereby reducing the tearing occurred at the end of the side edge 242.

[0029] Referring to FIGS. 3 and 8 , the release tab 240 is coplanar with the top wall 212 in a natural state. The release tab 240 has a certain elasticity capable of elastically deforming when being pressed. When the pressure applied to the release tab 240 disappears, the release tab 240 can return back to the natural state and be coplanar with the top wall 212.

[0030] Referring to FIGS. 7 and 8, the locking tab 110 is provided at a wall of the tray 100 adjacent to the release tab 240. In other words, the locking tab 110 is provided adjacent to the release tab 240 to reduce a distance between the locking tab 110 and the release tab 240, so that when pressing the release tab 240, the locking tab 110 can directly deform accordingly, thereby enabling the release of the tray 100 more convenient.

[0031] Referring to FIGS. 1 and 2, the locking tab 110 includes a locking edge 111, a guiding edge 112, and a transition edge 113 connected between the locking edge 111 and the guiding edge 112. When assembling the package, the tray 100 is inserted into the inner cavity 220 of the sleeve 200 along a EF direction of the arrow. The guiding edge 112 enters the insertion opening 221 prior to the locking edge 111. The locking tab 110 can be a right-angled trapezoid shaped. The locking edge 111 can be a right-angled waist of the right-angled trapezoid, that is, the locking edge 111 vertically extends from an edge of the tray 100. The guiding edge 112 can be an oblique waist of the right-angled trapezoid, that is, the guiding edge 112 tilts to the edge of the tray 100. The transition edge 113 is connected between the locking edge 111 and the guiding edge 112, and is parallel to the edge of the tray 100. When the tray 100 is in the closed position and the locking tab 110 extends through the rear locking slot 230, the locking edge 111 is engaged by the rear locking slot to prevent the tray 100 from being pulled out of the sleeve 200. During the insertion of the tray 100, the guiding edge 112 enables the locking tab 110 to elastically deform much more easier, since the guiding edge 112 is oblique with respective to the insertion direction of the tray 100, thereby enabling the insertion of the tray 100 much more easier. The locking tab 110 and the tray 100 can be integrally formed. Alternatively, the locking tab 110 and the tray 100 can be manufactured separately, and then coupled to each other via adhesive, thermo-compression, etc.

[0032] Referring to FIG. 3, a length of the tray 100 along the insertion direction is less than or equal to a length of the sleeve 200 along the insertion direction, thereby the tray 100 can be easily inserted into the inner cavity 220 of the sleeve 200 completely. Referring to FIG. 1, the sleeve 200 is further provided with a front locking slot 260. The front locking slot 260 is configured to engage the locking tab 110 only when the tray 100 is being pulled out of the sleeve 200. Thus, the front locking slot 260 defines the maximum distance that the tray can be opened relative to the sleeve 200. The front locking slot 260 and the rear locking slot 230 are located on the same side wall 213. Compared to the rear locking slot 230, and the front locking slot 260 is disposed closer to the insertion opening 221. When the locking tab 110 is inserted into the front locking slot 260, the tray 100 and the sleeve 200 are in a released state, and contents in the tray100 can be taken out at this time.

[0033] Referring to FIGS. 5 and 6, when the release tab 240 is pressed, the locking tab 110 is elastically deformed to retract into the inner cavity 220 accordingly in a bending state. Then the tray 100 can be pulled to move outward. During the movement, the locking tab 110 maintains the bending state. When the locking tab 110 moves to a position corresponding to the front locking slot 260, the locking tab 110 returns to the natural state due to its own elasticity and extends through the front locking slot 260, thereby preventing the tray 100 from dropping from the sleeve 200, and the contents in the tray 100 can be taken out.

[0034] Referring to FIGS. 1 and 2, the rear locking slot 230 is located at the top wall 212 and the side wall 213. Along a short edge direction of the side wall 213, a length of the rear locking slot 230 is greater than a length of the front locking slot 260, since the rear locking slot 230

needs to cooperate with the release tab 240 to press the locking tab 110 to retract into the inner cavity 220. When manufacturing the rear locking slot 230, part of the raw material that forms the sleeve 200 can be cut off to form a processing hole 2131 on the side wall 213. The processing hole 2131 is an opening of the rear locking slot 230 on the side wall 213. The front locking slot 260 can be defined by three connected cuts. The three connected cuts includes a free cut and two opposite side cuts. The two side cuts intersects with a folding line. When folding the raw material to form the sleeve 200, the front locking slot 260 is defined.

[0035] One wall 210 of the sleeve 200 defines a finger-receiving notch 250, which is adjacent to the insertion opening 221. Referring to FIGS. 1 and 2, the finger-receiving notch 250 is defined at the top wall 212. The tray 100 further includes a pulling plate 120 corresponding to the finger-receiving notch 250. After the tray 100 is inserted into the sleeve 200, the pulling plate 120, the bottom wall 211, and the two side walls 213 cooperatively defines an accommodation space 270 for accommodating a finger. Further referring to FIG. 3, when the tray 100 is inserted into the sleeve 200, a part of the pulling plate 120 is exposed from the finger-receiving notch 250. A user can use one hand to press the release tab 240, and use two fingers of the other hand to grip the pulling plate 120 from the accommodation space 270 and the finger-receiving notch 250 respectively, to pull the tray 100 out of the sleeve 200 from the insertion opening 221.

[0036] Referring to FIG. 1, the tray 100 further includes a protective sheet 130. One end of the protection sheet 130 is rotatably connected to the pulling plate 120. The other end *a* of the protection sheet 130 away from the connected end extends into the inner cavity 220 and abuts against the top wall 212. When the tray 100 is inserted into the inner cavity 220, the end *a* of the protection sheet 130 abuts against the top wall 212, thereby preventing the contents in the tray 100 from dropping from a gap between the tray 100 and the sleeve 200.

[0037] In the aforementioned package, the tray 100 and the sleeve 200 of the package can be locked via the engagement of the rear locking slot 230 and the locking tab 110, thereby preventing the tray 100 from dropping from the sleeve 200. In addition, the package can be used to contain contents that are not suitable for children to reach, such as drugs, since it is difficult for a children who use the package for the first time to release the package, thereby preventing potential dangers to the children.

Claims

1. A package, comprising:

a sleeve (200) comprising a plurality of walls (210), wherein the wall (210) comprising a bottom wall (211), a top wall (212), and a plurality of sidewalls (213) connecting the top wall (212) and the bottom wall (211); the bottom wall (211), the top wall (212) and the side walls (213) cooperatively form an inner cavity (220) having an insertion opening (221); and

a tray (100) slidably received in the inner cavity (220) via the insertion opening (221);

wherein the sleeve (200) is provided with a rear locking slot (230) on the sidewall (213), and the tray (100) is provided with a locking tab (110) capable of elastically extending through the rear locking slot (230) to lock the tray (100) in place relative to the sleeve (200), and the sleeve (200) is further provided with a release tab (240) capable of pressing the locking tab (110) into the inner cavity (220), so as to release the locking tab (110) from the rear locking slot (230).

2. The package of claim 1, **characterized in that** the release tab (240) comprises a free edge (241) and two side edges (242) connected to both ends of the free edge (241), and an end of the release tab (240) away from the free edge (241) is fixed to a wall (210).

3. The package of claim 2, **characterized in that** the side edges (242) extend into and connect to the wall (210).

4. The package of claim 3, **characterized in that** an anti-tear portion (2421) is provided at an end of the side edge (242) connected to the wall (210).

5. The package of claim 4, **characterized in that** the anti-tear portion (2421) is a curved edge, and two anti-tear portions (2421) extend along opposite directions.

6. The package of any one of claims 1 to 5, **characterized in that** the locking tab (110) comprises a locking edge (111) extending vertically from an edge of the tray (100), a transition edge (113) connected to the locking edge (111) and parallel to the edge of the tray (100), and a guiding edge (112) connected to the transition edge (113) and tilted to the edge of the tray (100), wherein the locking edge (111) is configured to be engaged by the rear locking slot (230).

7. The package of claim 6, **characterized in that** the locking tab (110) is a right trapezoid shaped, the locking edge (111) is the right-angled waist of the right trapezoid, and the guiding edge (112) is the oblique waist of the right trapezoid.

8. The package of claim 7, **characterized in that** the sleeve (200) is further provided with a front locking slot (260) on the same sidewall (213), and the front locking slot (260) is more adjacent to the insertion opening (221) compared to the rear locking slot (230).

9. The package of any one of claims 1 to 8, **characterized in that** the top wall (212) defines a finger-receiving notch (250) adjacent to the insertion opening (221), the tray (100) is provided with a pulling plate (120) corresponding the finger-receiving notch (250), and after the tray (100) is inserted into the sleeve (200), the pulling plate (120), the bottom wall (211), and two sidewalls (213) cooperatively form an accommodation space (270) for accommodating a finger.

10. The package of claim 9, **characterized in that** the tray (100) further comprises a protection sheet (130), and an end of the protection sheet (130) is rotatably connected to the plate (120), the other end of the protection sheet (130) extends into the inner cavity (220) and abuts against the top wall (212).

Amended claims in accordance with Rule 137(2) EPC.

1. A package, comprising:

a sleeve (200) comprising a plurality of walls (210), wherein the plurality of walls (210) comprises a bottom wall (211), a top wall (212), and a plurality of sidewalls (213) connecting the top wall (212) and the bottom wall (211); the bottom wall (211), the top wall (212) and the side walls (213) cooperatively form an inner cavity (220) having an insertion opening (221); and
a tray (100) slidably received in the inner cavity (220) via the insertion opening (221);
wherein the sleeve (200) is provided with a rear locking slot (230) on one of the plurality of sidewalls (213), and the tray (100) is provided with a locking tab (110) capable of elastically extending through the rear locking slot (230) to lock the tray (100) in place relative to the sleeve (200), and the sleeve (200) is further provided with a release tab (240) capable of pressing the locking tab (110) into the inner cavity (220), so as to release the locking tab (110) from the rear locking slot (230),
characterized in that
the release tab (240) comprises a free edge (241), two side edges (242) connected to both ends of the free edge (241), and an end away from the free edge (241) fixed to the top wall (212), and the release tab (240) is adapted, when being pressed, to bend downward to press the locking tab (110) to bend downward into the inner cavity (220), so as to release the locking tab (110) from the rear locking slot (230).

2. The package of claim 1, wherein the side edges (242) extend into and connect to the top wall (212).

3. The package of claim 2, wherein an anti-tear portion (2421) is provided to each side edge (242) at the end connected to the top wall (212).

4. The package of claim 3, wherein the anti-tear portion (2421) is a curved edge and extends along opposite direction.

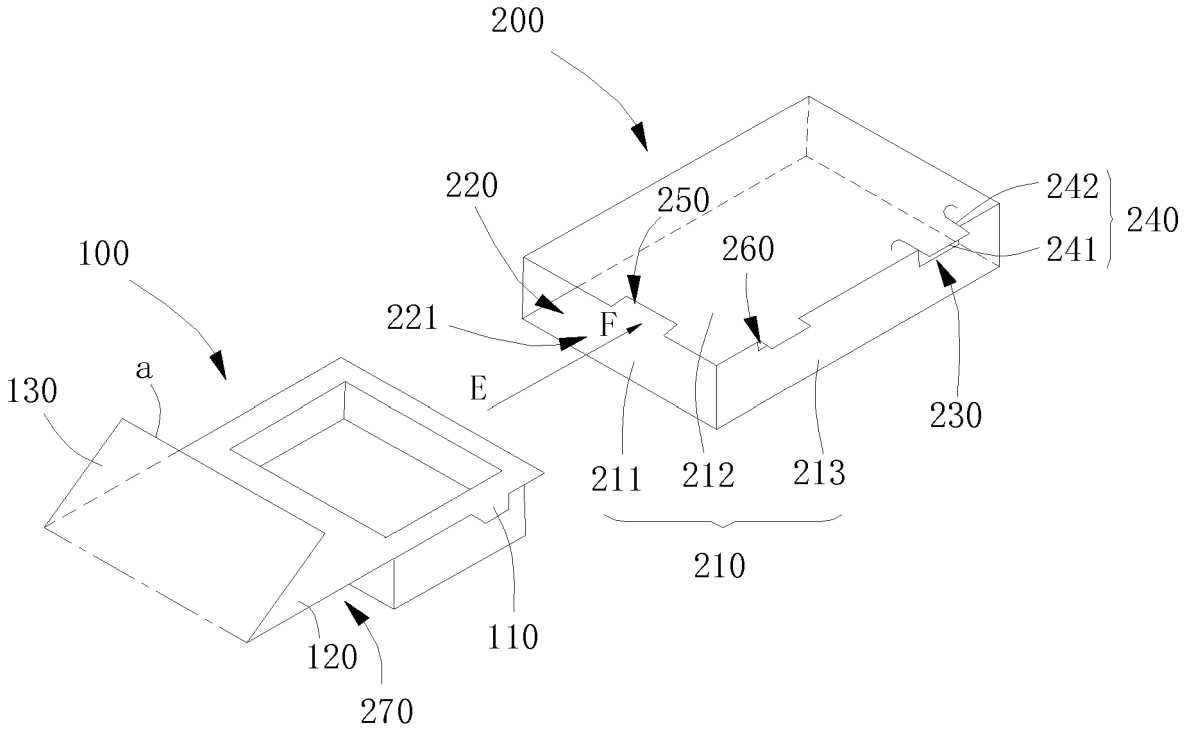
5. The package of any one of claims 1 to 4, wherein the locking tab (110) comprises a locking edge (111) extending vertically from an edge of the tray (100), a transition edge (113) connected to the locking edge (111) and parallel to the edge of the tray (100), and a guiding edge (112) connected to the transition edge (113) and tilted to the edge of the tray (100), wherein the locking edge (111) is configured to be engaged by the rear locking slot (230).

6. The package of claim 5, wherein the locking tab (110) is a right trapezoid shaped, the locking edge (111) is the right-angled waist of the right trapezoid, and the guiding edge (112) is the oblique waist of the right trapezoid.

7. The package of claim 6, wherein the sleeve (200) is further provided with a front locking slot (260) on the same sidewall (213), and the front locking slot (260) is more adjacent to the insertion opening (221) compared to the rear locking slot (230).

8. The package of any one of claims 1 to 7, wherein the top wall (212) defines a finger-receiving notch (250) adjacent to the insertion opening (221), the tray (100) is provided with a pulling plate (120) corresponding the finger-receiving notch (250), and after the tray (100) is inserted into the sleeve (200), the pulling plate (120), the bottom wall (211), and two sidewalls (213) cooperatively form an accommodation space (270) for accommodating a finger.

9. The package of claim 8, wherein the tray (100) further comprises a protection sheet (130), and an end of the protection sheet (130) is rotatably connected to the plate (120), the other end of the protection sheet (130) extends into the inner cavity (220) and abuts against the top wall (212).


200
220
250
242
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260
221
F
E
130
a
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211
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210
110
120
270

FIG. 1

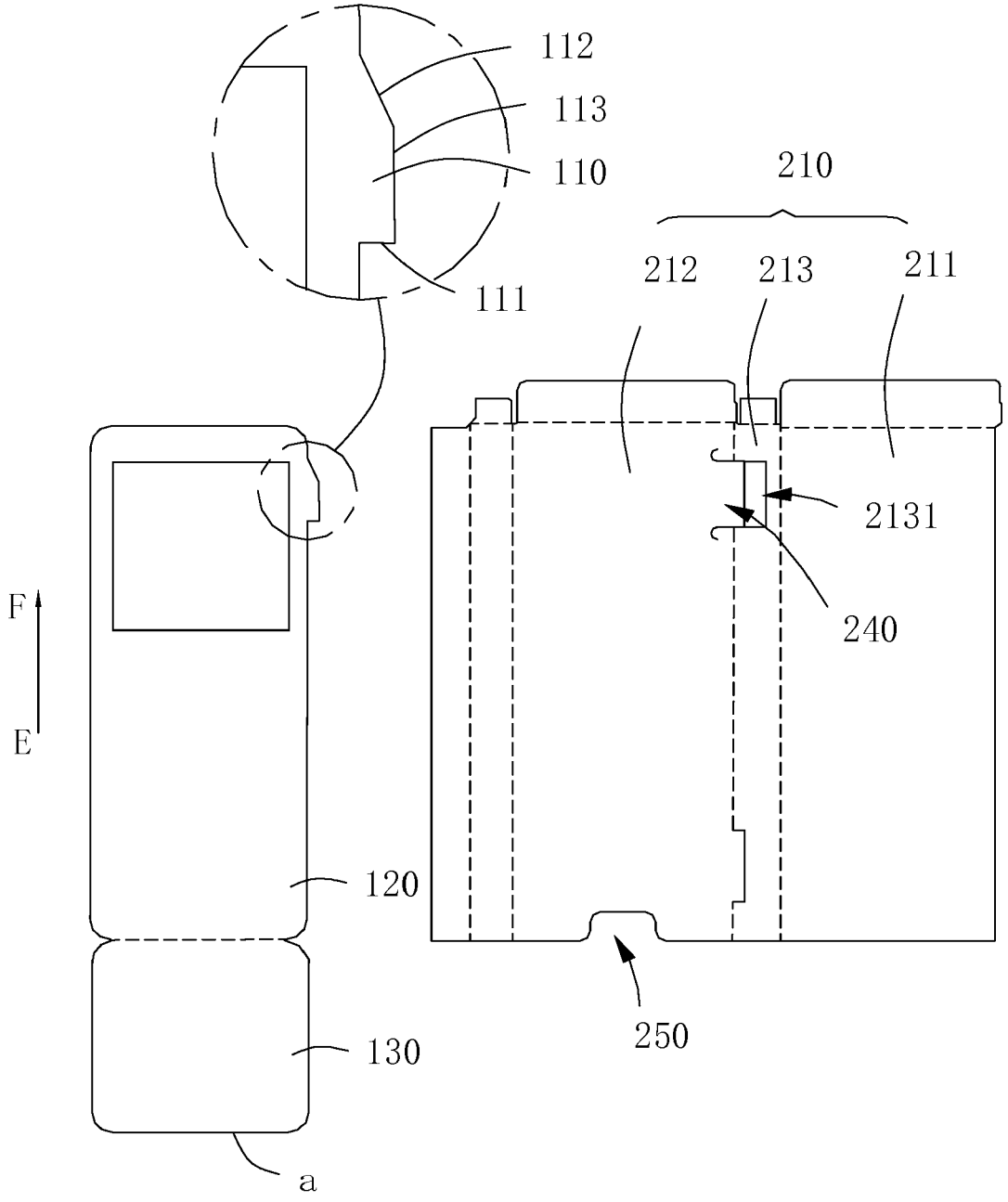

FIG. 2

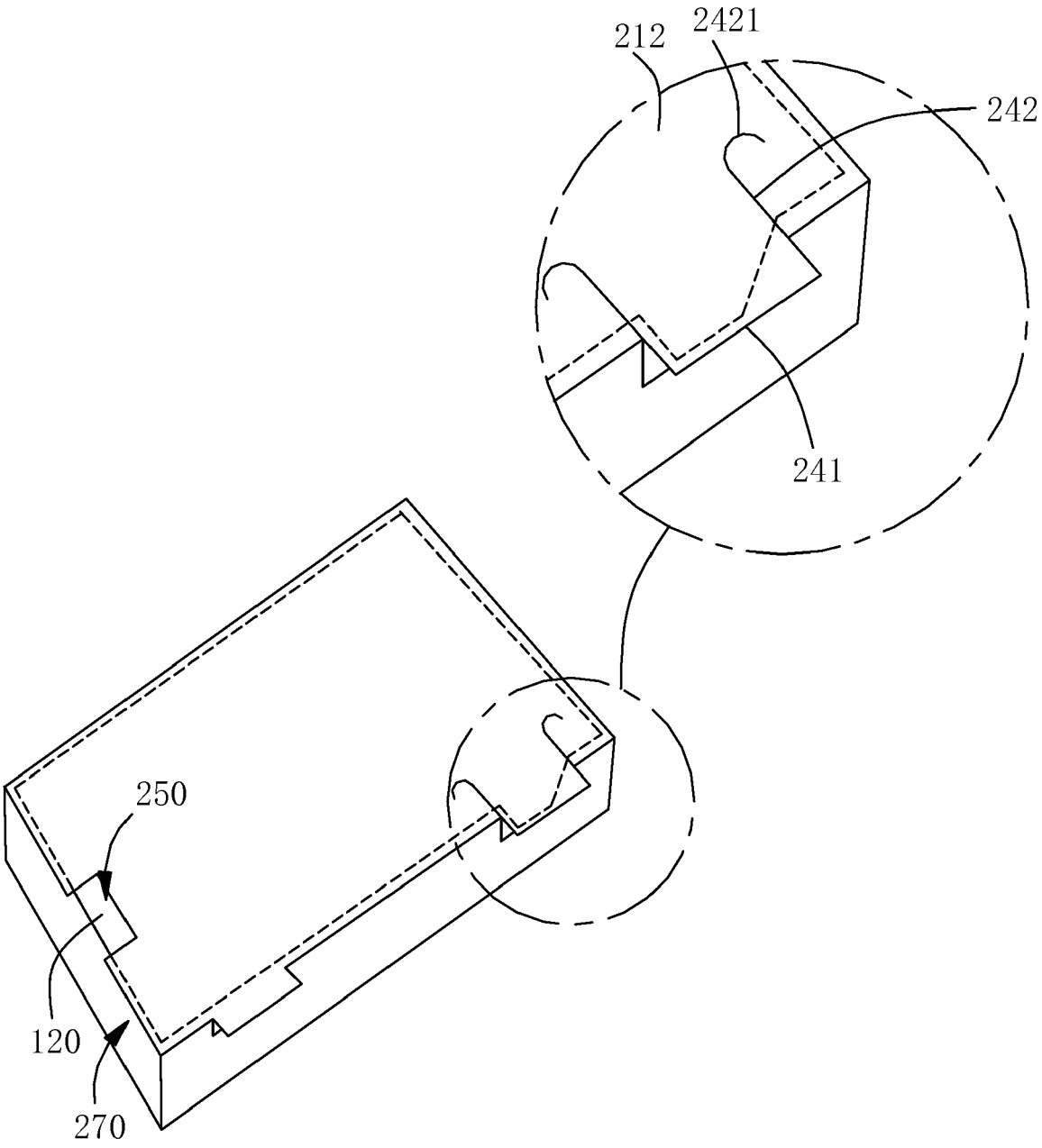

FIG. 3

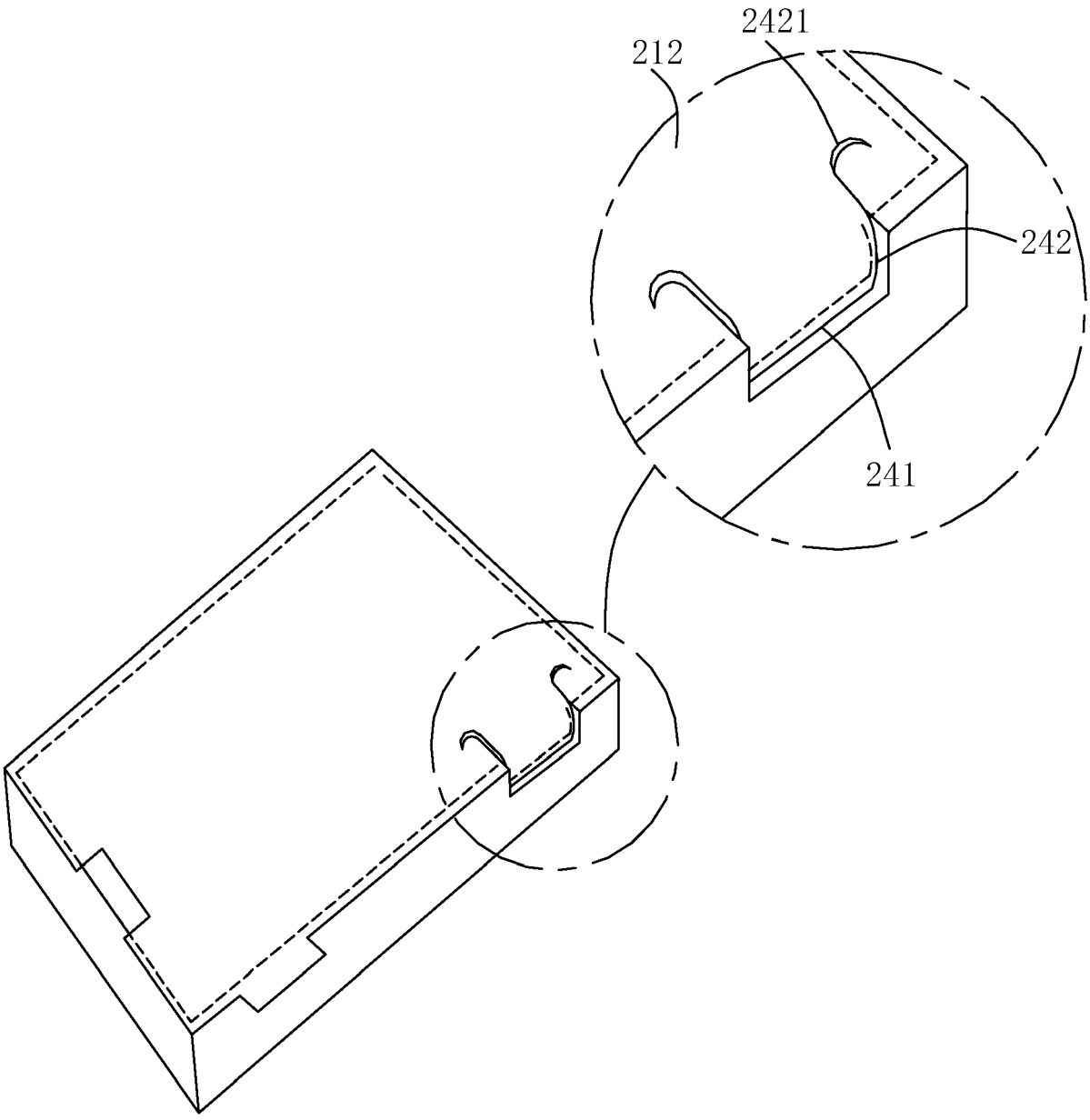

FIG. 4

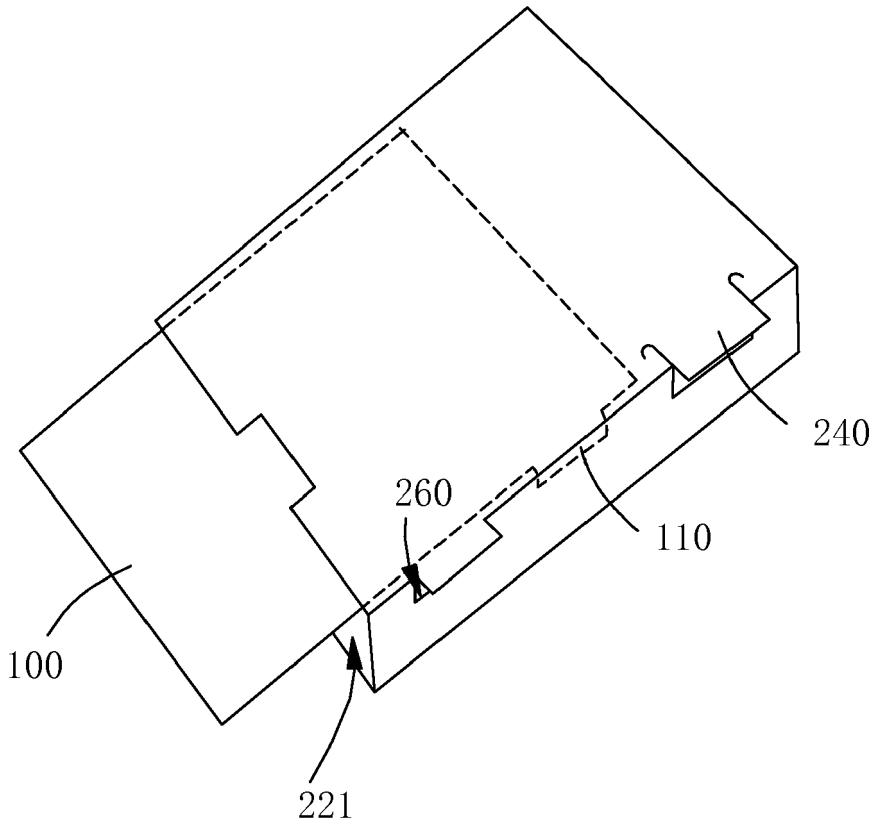

FIG. 5

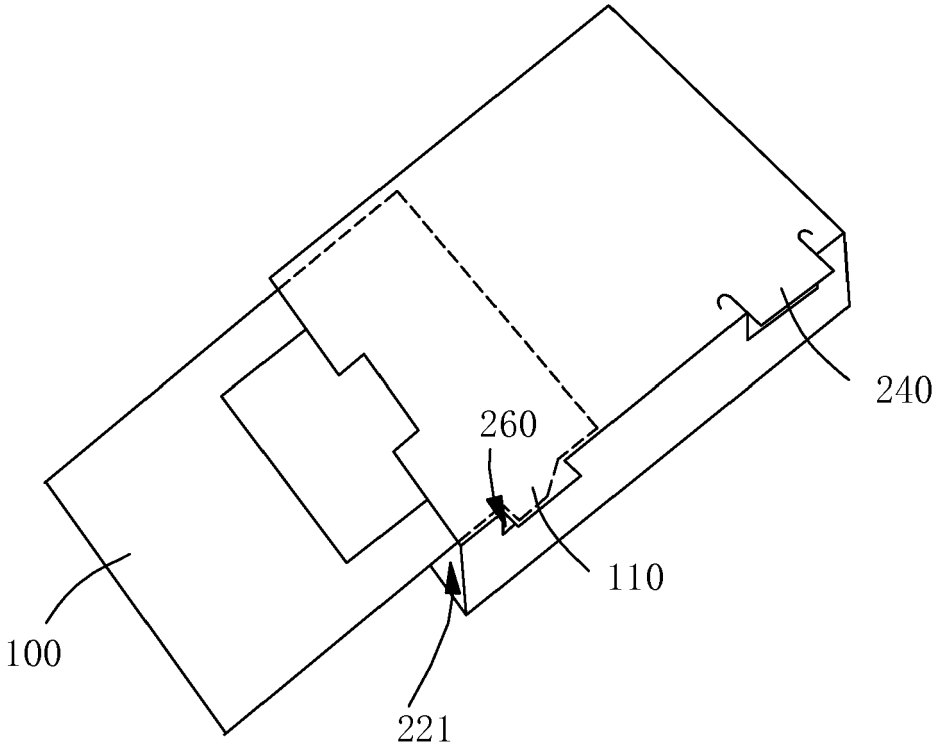

FIG. 6

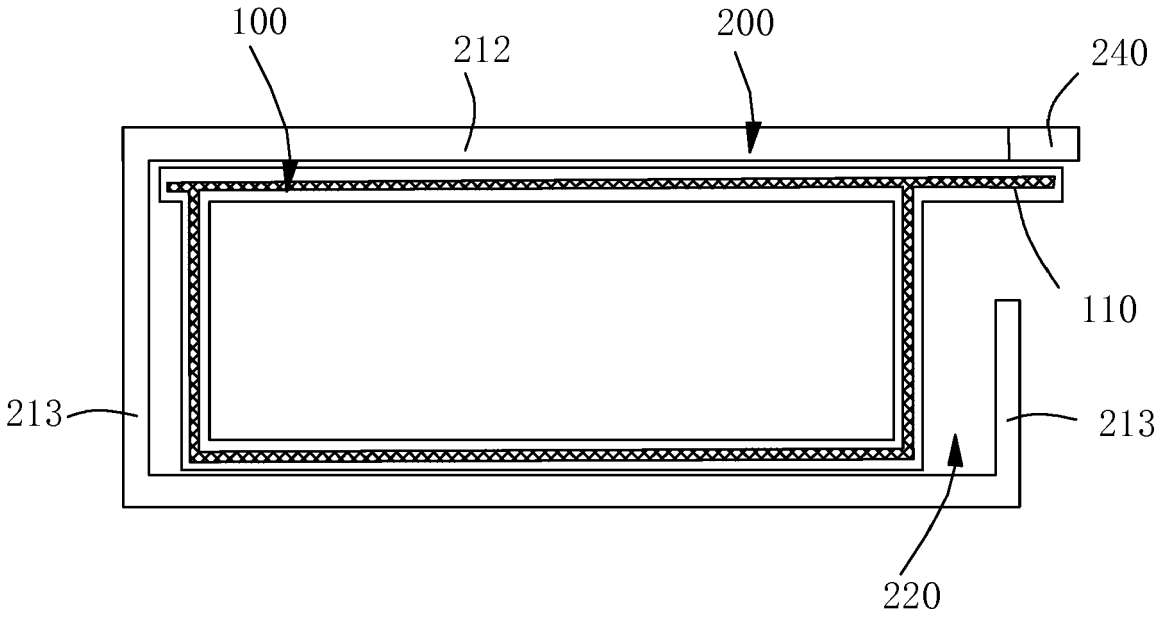

FIG. 7

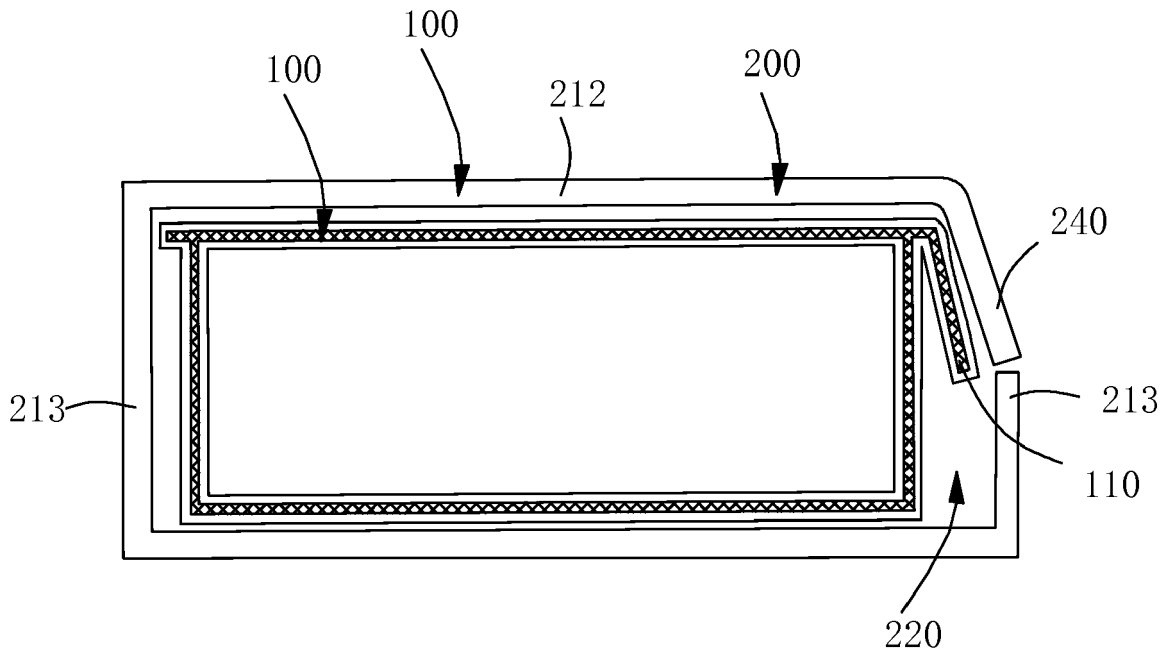

FIG. 8

Europäisches Patentamt
European Patent Office
Office européen des brevets

EUROPEAN SEARCH REPORT

Application Number
EP 18 20 3468

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	21 December 2018	Duc, Emmanuel

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