

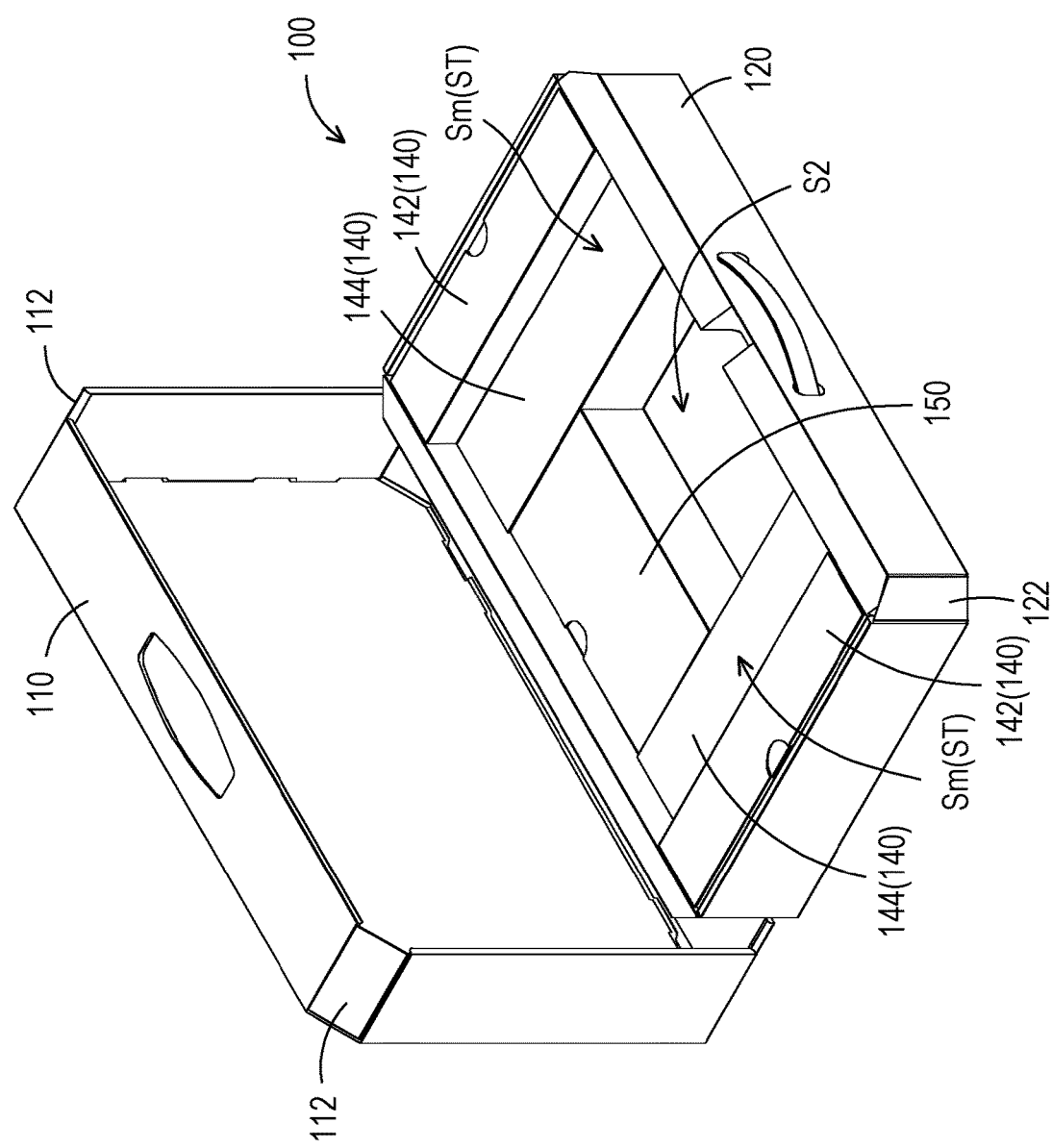


FIG. 1

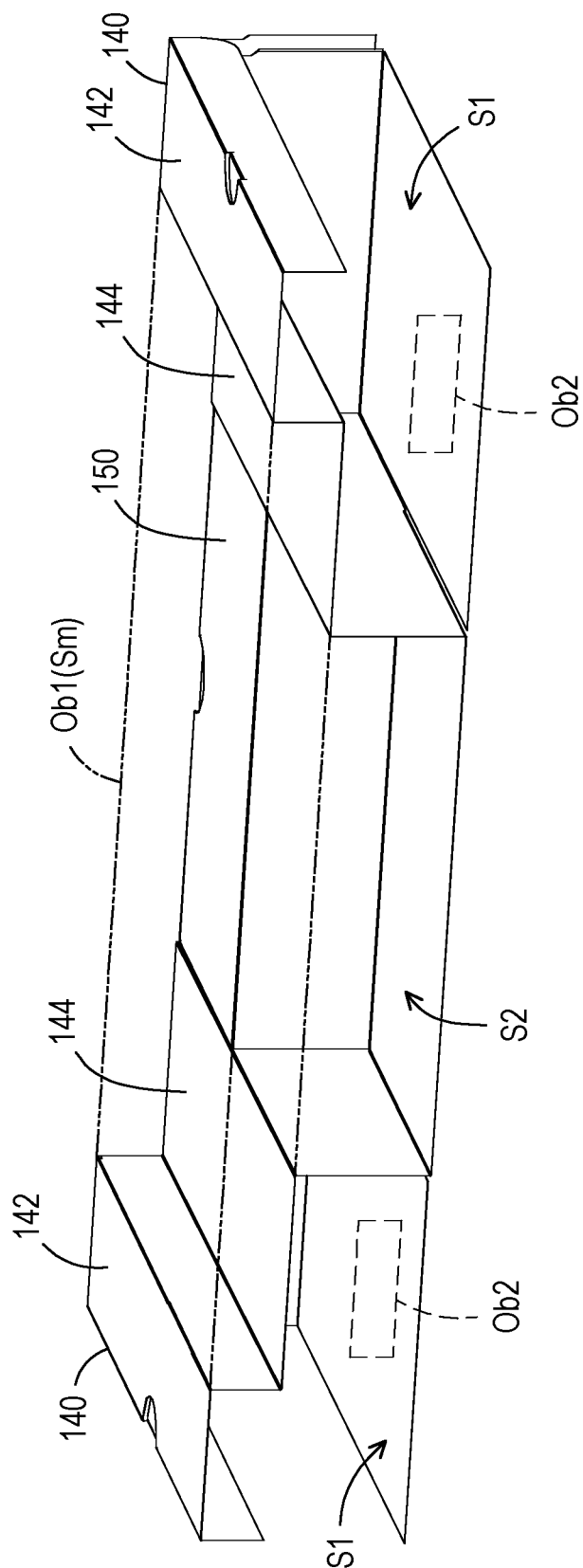


FIG. 2

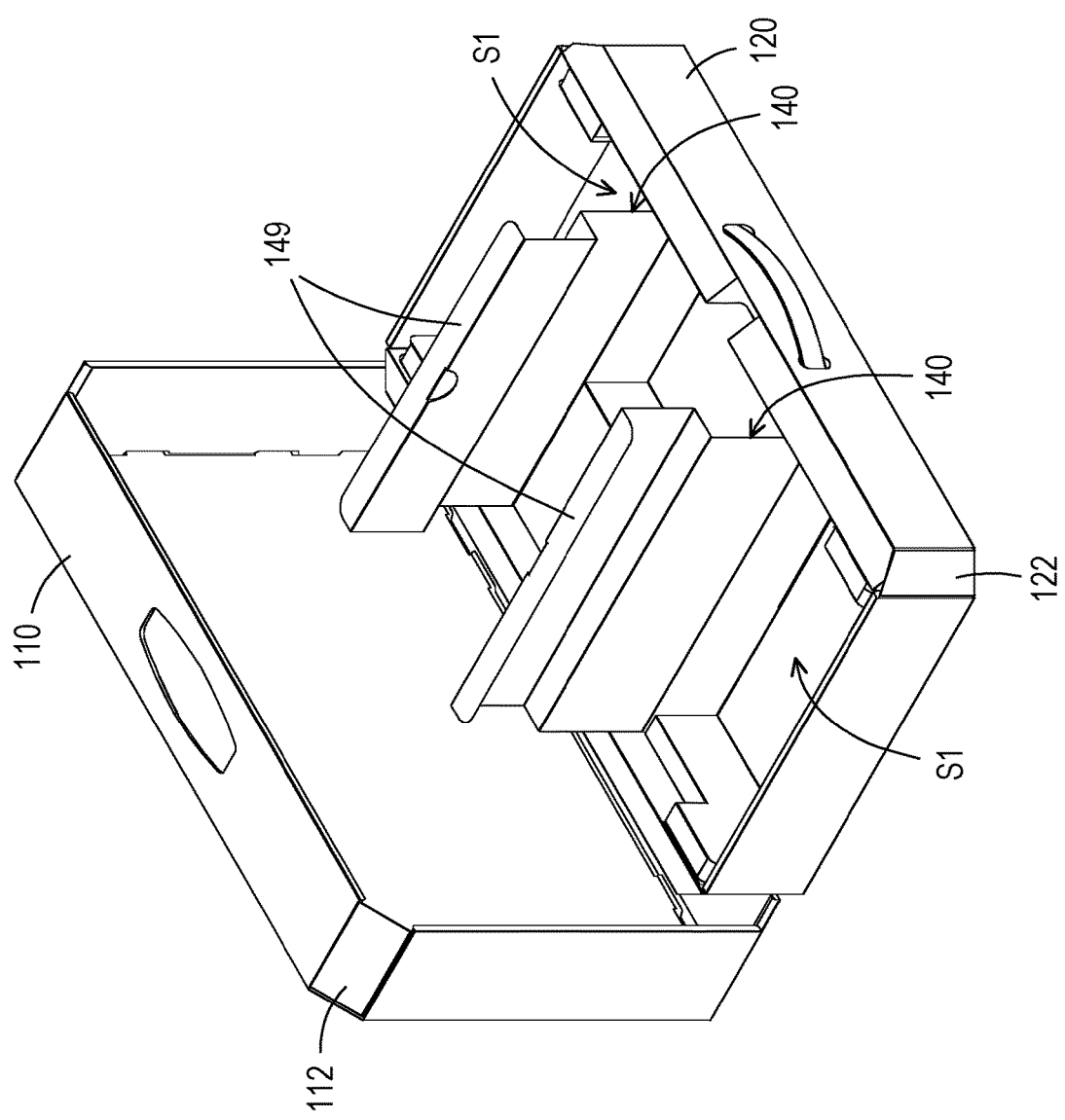


FIG. 3

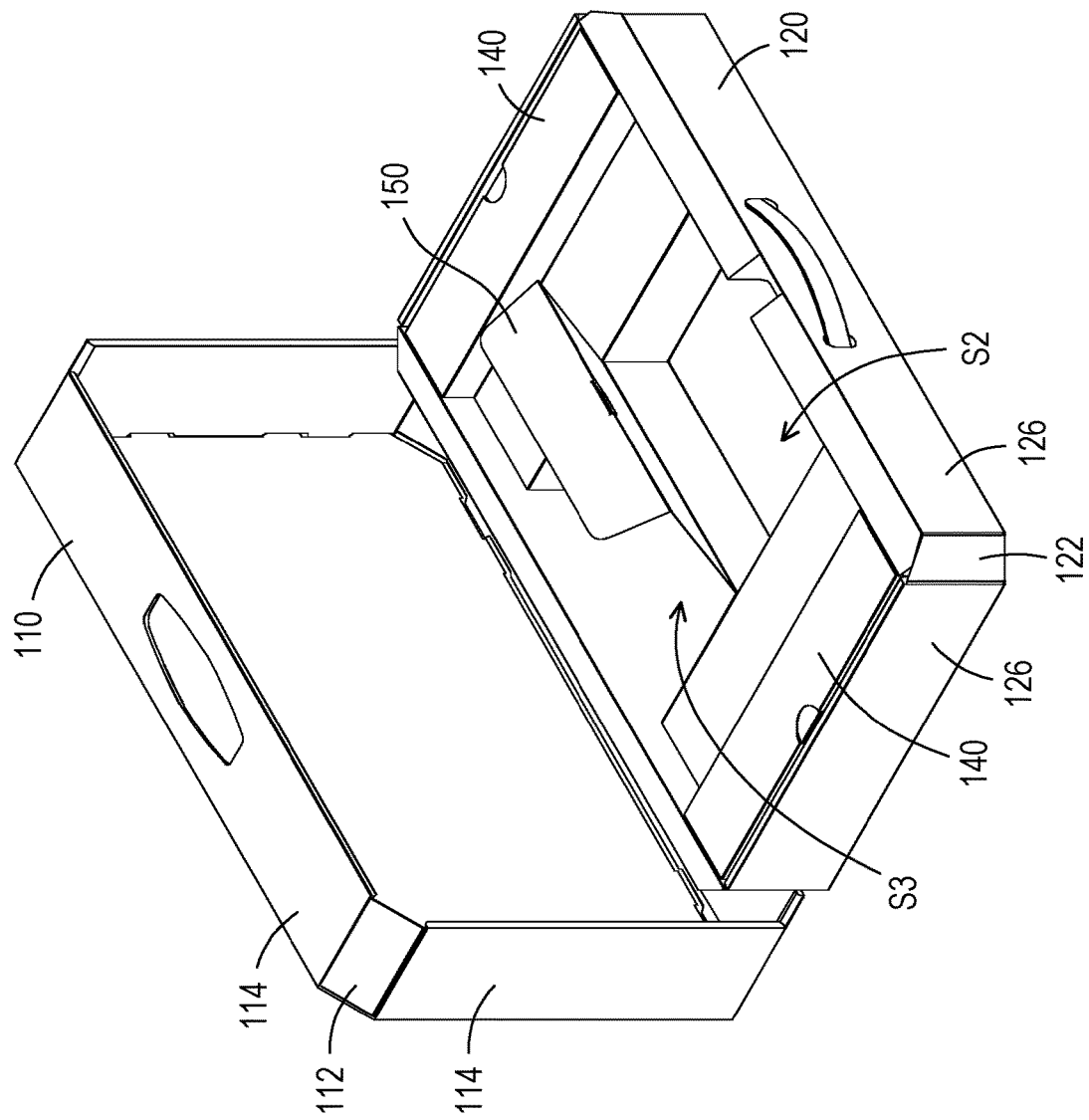


FIG. 4

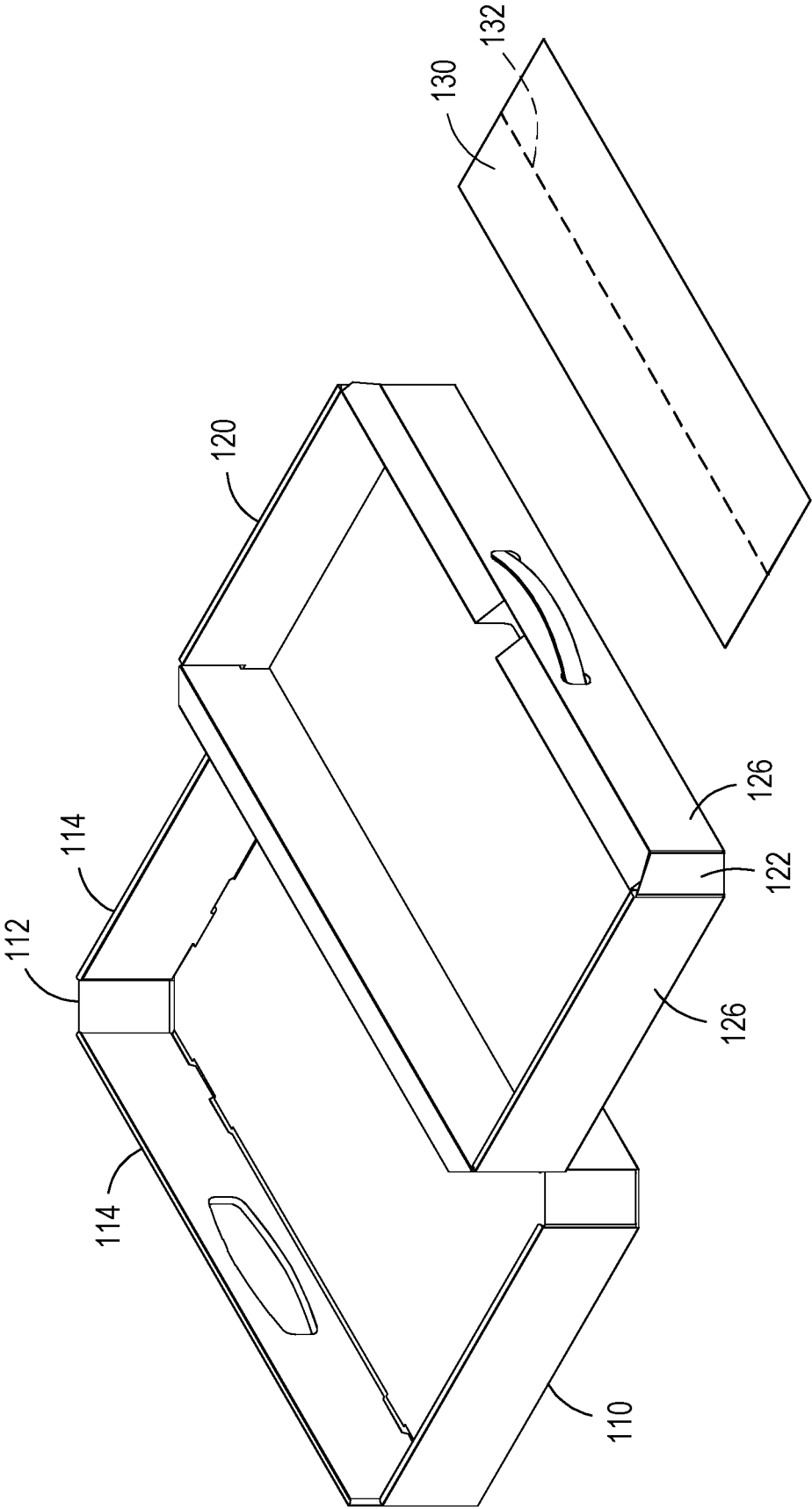


FIG. 5

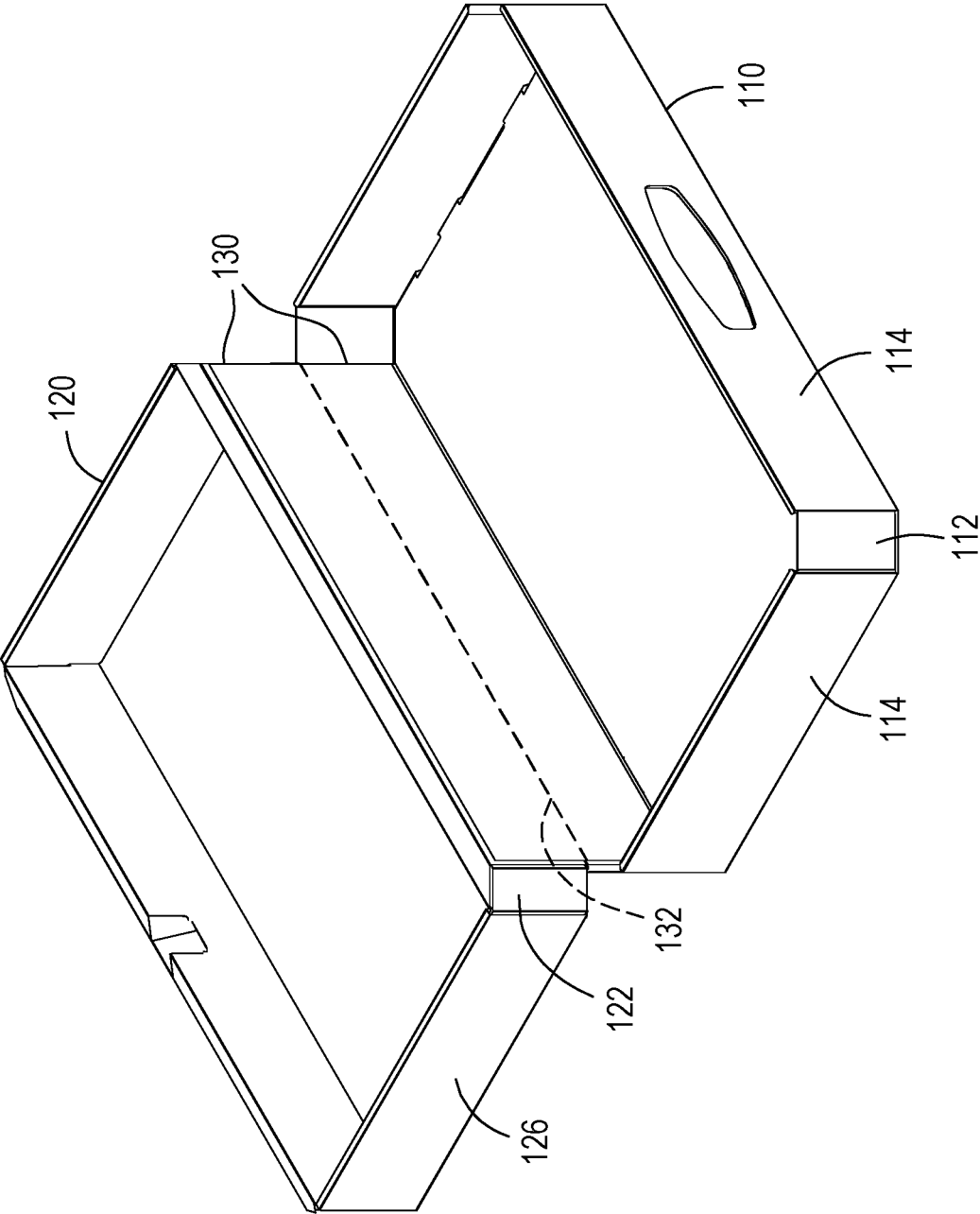


FIG. 6

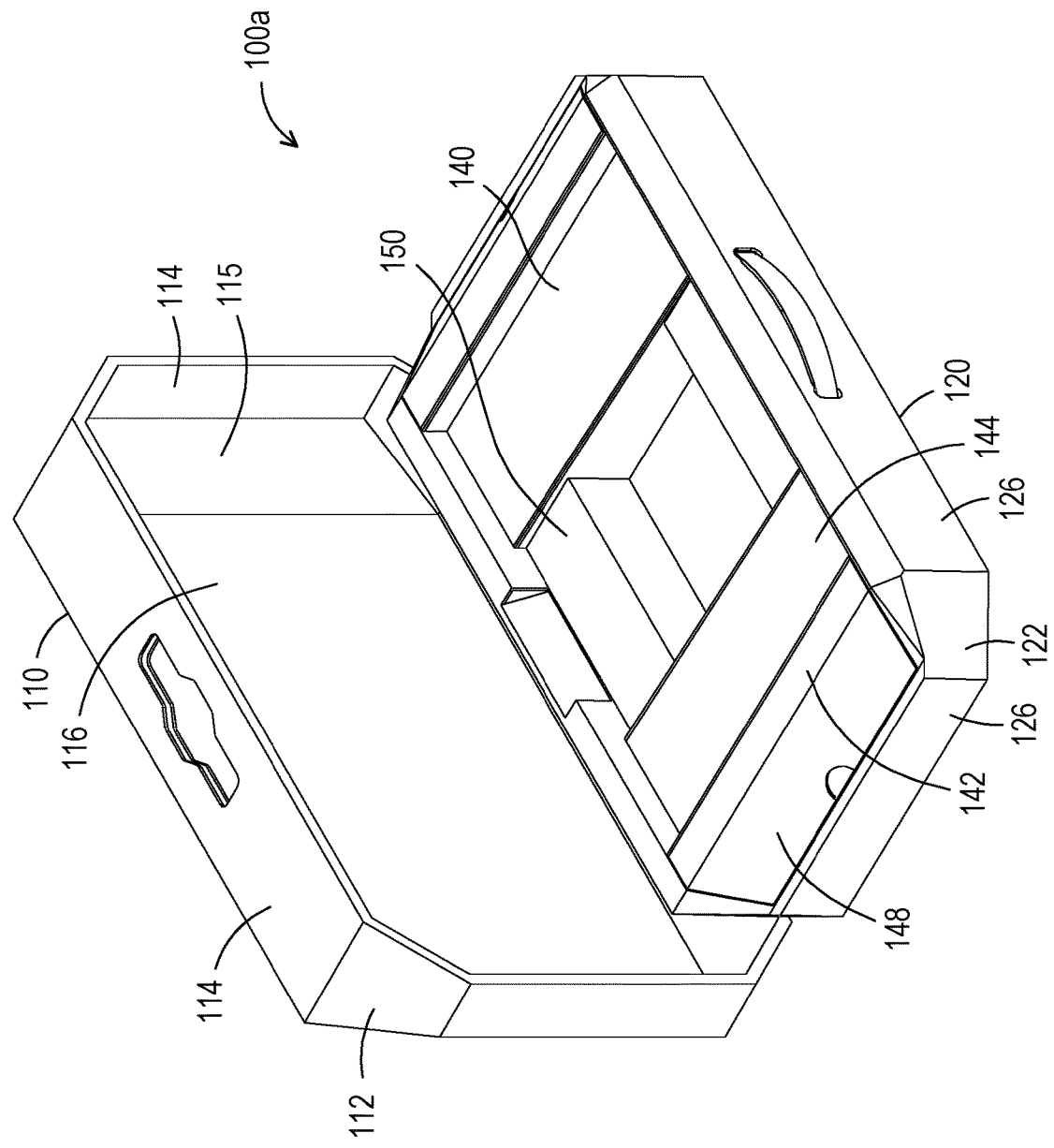


FIG. 7

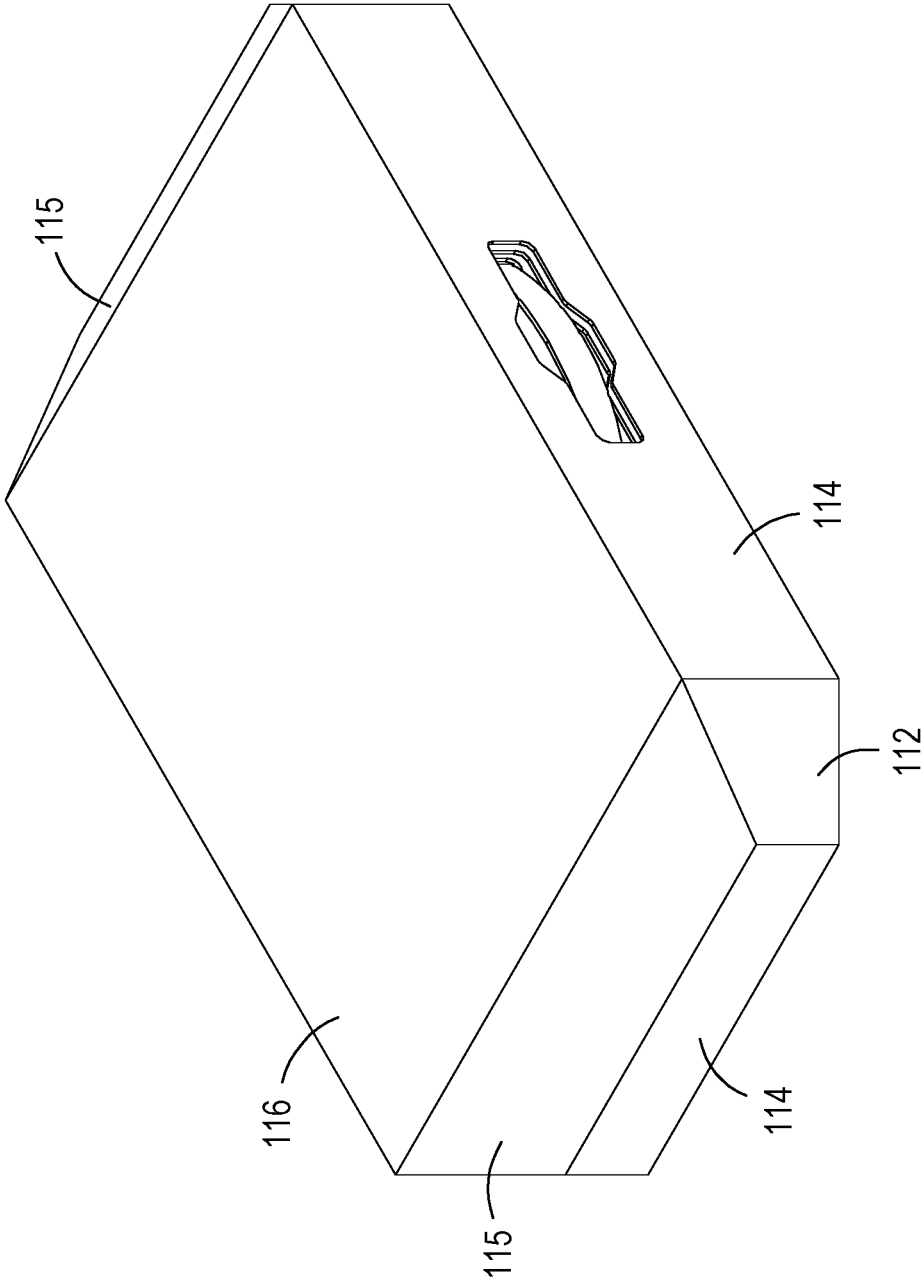


FIG. 8

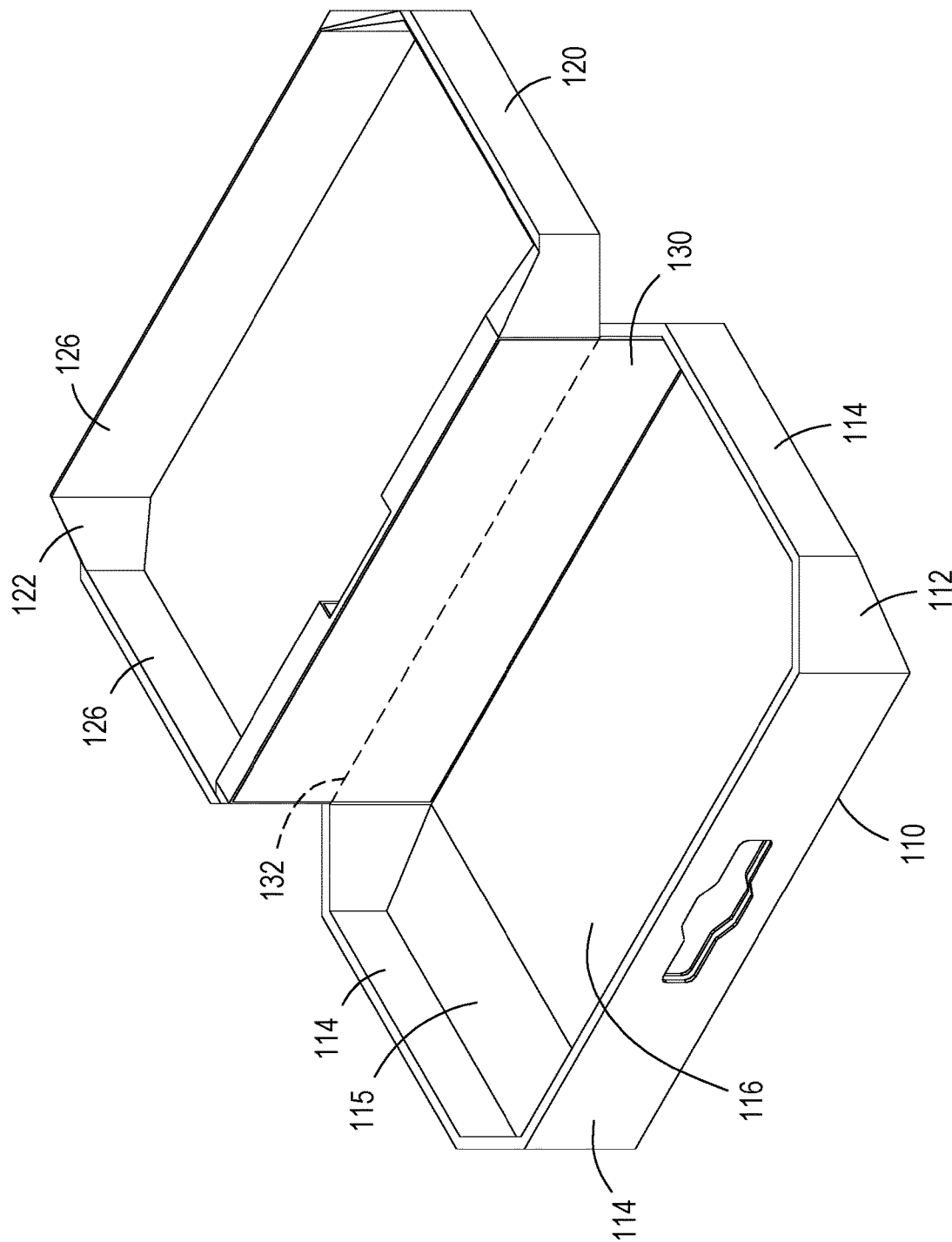


FIG. 9

PACKING BOX

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims the priority benefit of Chinese Application Serial No. 20211117122.5, filed on Sep. 23, 2021. The entirety of the above-mentioned patent application is hereby incorporated by reference herein and made a part of the specification.

BACKGROUND OF THE INVENTION

Field of the Invention

[0002] The disclosure relates to a packing box.

Description of the Related Art

[0003] As the upgrading of electronic products is accelerating, various packing boxes for accommodating electronic products and related accessories are emerging one after another. At present, a variety of electronic products are available on the market. Considering high precision and fragility of electronic components, electronic products and related accessories need to be completely wrapped in packing boxes in order to prevent the electronic products and related accessories from being damaged by impact during transportation and reduce the damage rate during the transportation. In the prior art, to separate a product and related accessories in an outer packing box, the product and accessories are packaged in small packing boxes separately, and the small packing boxes are then placed in a large packing box, resulting in excessive use of materials. In addition, because the sizes and shapes of the small packing boxes are often not the same, the volume of the outer packing box needs to be increased to accommodate all the small packing boxes, resulting in space waste and increased transportation costs.

[0004] Moreover, in some packing structures, a plurality of partitions is arranged in the outer packing box by adhesion to separate the space. However, such structures not only require more labor, material resources, and time to build, but also lead to instability and a poor buffering effect of the packing box.

BRIEF SUMMARY OF THE INVENTION

[0005] According to an aspect, a packing box is provided. The packing box includes: a cover, a box body, a connecting plate, and a lining partition. The connecting plate is connected between the cover and the box body through bending, so that the cover is adapted to rotate relative to the box body to open and close. The lining partition is disposed in the box body and is folded to form a main space of a step structure. The step structure is configured to hold an object. A lower surface of the step structure and an inner surface of the box body jointly form an accommodation space for accommodating another object.

[0006] Based on the above, the packing box according to embodiments of the disclosure includes the lining partition disposed in the box body. The lining partition is folded to form the step structure for holding an object. The lower surface of the step structure and the inner surface of the box body jointly form another accommodation space for accommodating another object. With this configuration, the lining

partition with the step structure not only provides a designed appearance, but also improves the space utilization of the packing box.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] The accompanying drawings are included to provide a further understanding of the disclosure, and are incorporated in and constitute a part of this specification. The accompanying drawings illustrate embodiments of the disclosure and, together with the descriptions, serve to explain the principles of the disclosure.

[0008] FIG. 1 is a schematic three-dimensional diagram of a packing box in an opened state according to an embodiment of the disclosure;

[0009] FIG. 2 is a schematic cross-sectional view of a lining partition of a packing box according to an embodiment of the disclosure;

[0010] FIG. 3 is a schematic diagram of a packing box when a first lining partition is opened according to an embodiment of the disclosure;

[0011] FIG. 4 is a schematic diagram of a packing box when a second lining partition is opened according to an embodiment of the disclosure;

[0012] FIG. 5 is a schematic diagram of some components of a packing box according to an embodiment of the disclosure;

[0013] FIG. 6 is a schematic diagram of some components of a packing box from another perspective according to an embodiment of the disclosure;

[0014] FIG. 7 is a schematic three-dimensional diagram of a packing box in an opened state according to another embodiment of the disclosure;

[0015] FIG. 8 is a schematic three-dimensional diagram of a packing box in a closed state according to another embodiment of the disclosure; and

[0016] FIG. 9 is a schematic diagram of some components of a packing box according to another embodiment of the disclosure.

DETAILED DESCRIPTION OF THE EMBODIMENTS

[0017] References will now be made in detail to exemplary embodiments of the disclosure, and examples of the exemplary embodiments are described in the accompanying drawings. Whenever possible, the same element symbols are used in the drawings and descriptions to indicate the same or similar parts.

[0018] FIG. 1 is a schematic three-dimensional diagram of a packing box in an opened state according to an embodiment of the disclosure. FIG. 2 is a schematic cross-sectional view of a lining partition of a packing box according to an embodiment of the disclosure. Referring to FIG. 1 and FIG. 2, a packing box 100 includes a cover 110, a box body 120, a connecting plate 130, and a first lining partition 140. In this embodiment, the cover 110 and the box body 120 are two separate components, and are connected through a connecting plate 130 so that the cover 110 is adapted to rotate relative to the box body 120 to open and close. The packing box 100 is configured to accommodate a plurality of objects ob1 and ob2. Specifically, the packing box 100 is configured to accommodate a main object (for example, the object ob1) and at least one accessory of the main object (for example, the object ob2). In this embodiment, the packing box 100 is

a packing box for accommodating a notebook computer. In other words, the object ob1 includes the notebook computer, and the object ob2 includes accessories of the notebook computer such as a power cord, a mouse, and earphones. In some other embodiments, the packing box 100 is a packing box for accommodating a portable electronic device such as a tablet computer or a smartphone.

[0019] Referring to FIG. 1 and FIG. 2 together, in an embodiment, the box body 120 frames an initial accommodation space, and the first lining partition 140 is disposed in the box body 120 to divide the initial accommodation space into a plurality of spaces for accommodating objects. Specifically, the first lining partition 140 is folded to form a step structure ST as shown in FIG. 1. In this embodiment, the first lining partition 140 is integrally formed by folding a board (for example, a cardboard). In this way, a main space Sm formed by the step structure ST is configured to hold one of a plurality of objects (for example, the object ob1). A lower surface of the step structure ST and an inner surface of the box body 120 jointly form a first accommodation space S1 for accommodating another one of the plurality of objects (for example, the object ob2). Further, the step structure ST includes a top surface 142 and a step platform surface 144 lower than the top surface 142, and the object ob1 is placed in the main space Sm (for example, placed on the step platform surface 144). In addition, the object ob2 is placed in the first accommodation space S1 separated by a lower surface of the first lining partition 140. With this configuration, because the first lining partition 140 includes the step structure ST, when viewed from a direction of an upper view, the first accommodation space S1 separated by the step structure ST overlaps with the step platform surface 144. In other words, when viewed from the direction of the upper view, the main space Sm for holding the object ob1 overlaps with the first accommodation space S1 for holding the object ob2. That is, a range of an orthographic projection of the first accommodation space on a bottom surface of the box body 120 overlaps with a range of an orthographic projection of the main space Sm on the bottom surface of the box body 120. Therefore, the space utilization of the packing box is improved.

[0020] In this embodiment, the packing box 100 includes a plurality of first lining partitions 140. As shown in FIG. 1, there are two first lining partitions respectively disposed on opposite sides of the box body 120. With this configuration, opposite ends of the object ob1 are respectively placed on the step platform surfaces 144 of the first lining partitions 140 on the opposite sides of the box body 120, that is, above the main space Sm. In addition, a plurality of objects ob2 is respectively placed in a plurality of first accommodation spaces S1 separated by the plurality of first lining partitions 140, and when viewed from the direction of the upper view, the plurality of first accommodation spaces S1 respectively overlaps with the step platform surface 144 for holding the object ob1. That is, the range of the orthographic projection of the first accommodation space on the bottom surface of the box body 120 overlaps with the range of the orthographic projection of the main space Sm on the bottom surface of the box body. In other words, the main space for accommodating the object ob1 separately overlaps with the plurality of first accommodation spaces S1 for accommodating the plurality of objects ob2 in a vertical direction. Therefore, the space utilization of the packing box 100 is improved. In addition, in an embodiment, another accommodation space

S2 is defined between the first lining partitions 140 disposed on the opposite sides of the box body 120. The accommodation space S2 is configured to accommodate, for example, other accessories of the object ob1, to further increase the accommodation space of the packing box 100.

[0021] FIG. 3 is a schematic diagram of a packing box when a first lining partition is opened according to an embodiment of the disclosure. Referring to FIG. 3, in this embodiment, the first lining partition 140 includes a flap 149. The flap 149 is disposed near an end portion of the box body 120. The flap 149 is bent to abut against the inner surface of the box body 120, so that the first lining partition 140 is detachably fixed on the box body 120. Therefore, for the packing box 100, the first lining partition 140 is detachably fixed on the box body 120 without using glue, simplifying the assembly complexity. In addition, a user can easily open the first lining partition 140 to a state shown in FIG. 3 to access the objects ob2 stored in the first accommodation space S1.

[0022] FIG. 4 is a schematic diagram of a packing box when a second lining partition is opened according to an embodiment of the disclosure. Referring to FIG. 1 and FIG. 4, in an embodiment, the packing box 100 further includes a second lining partition 150. The second lining partition 150 is disposed in the box body 120. A top surface of the second lining partition 150 is substantially coplanar with the step platform surface 144 of the first lining partition 140, so that the object ob1 is supported on the step platform surface 144 of the first lining partition 140 and the top surface of the second lining partition 150. Alternatively, the top surface of the second lining partition 150 is substantially lower than the step platform surface 144, so that the second lining partition 150 does not affect (interfere with) the placement of the object ob1. In this embodiment, the second lining partition 150 not only defines the accommodation space S2 together with the first lining partitions 140 on the opposite sides, but also is folded to form a second accommodation space S3 together with the inner surface of the box body 120 as shown in FIG. 4. In addition, a flap of the second lining partition 150 is bent to abut against the inner surface of the box body 120, so that the second lining partition 150 is detachably fixed on the box body 120. Therefore, the assembly complexity is simplified, and it is easy for the user to open the second lining partition 150 to access objects (for example, the other accessories of the object ob1) stored in the second accommodation space S3.

[0023] FIG. 5 is a schematic diagram of some components of a packing box according to an embodiment of the disclosure. FIG. 6 is a schematic diagram of some components of a packing box from another perspective according to an embodiment of the disclosure. It is to be noted that, for the brevity of the drawings, FIG. 5 and FIG. 6 omit the lining partitions 140 and 150. Referring to FIG. 5 and FIG. 6 together, in this embodiment, the cover 110 and the box body 120 are two separate and independent components, and are respectively formed by folding two separate boards (for example, cardboards). The cover 110 and the box body 120 are connected via a connecting plate 130. The connecting plate 130 is connected between the cover 110 and the box body 120 in a bendable manner as shown in FIG. 6, so that the cover 110 is adapted to rotate relative to the box body 120 to open and close. In an embodiment, the connecting plate 130 is bent along a central folding line 132. Two sides of the folding line 132 are attached to the cover 110 and the

box body 120 respectively as shown in FIG. 6. In this way, the cover 110 and the box body 120 are relatively opened or closed via the folding line 132 of the connecting plate 130. With this configuration, the boards folded to form the cover 110 and the box body 120 are roughly the same or similar, simplifying the design and assembly process of the boards. In addition, when the packing box 100 connected via the connecting plate 130 is in an opened state as shown on the left side of FIG. 5, the box body 120 is slightly inclined due to pulling and lifting of the connecting plate 130, and forms an acute angle with a supporting plane (for example, a desktop). In other words, when the packing box 100 is in the opened state, the box body 120 is placed on the desktop in a slightly inclined manner, to achieve an effect of displaying a product (for example, the object ob1).

[0024] In an embodiment, the box body 120 further includes a box body protection slope 122 that is connected between two adjacent side surfaces 126 of the box body 120 and that forms an obtuse angle with the two adjacent side surfaces 126 of the box body 120 respectively. Correspondingly, the cover 110 includes a cover protection slope 112 corresponding to the box body protection slope 122. The cover protection slope 122 is connected between two adjacent side surfaces 114 of the cover 110 and forms an obtuse angle with the two adjacent side surfaces 114 of the cover 110 respectively. In other words, the protection slopes 112 and 122 that form obtuse angles with the corresponding side surfaces form chamfers at vertical corners of the packing box 100, so that the packing box 100 becomes an octagonal box body. With this configuration, the protection slopes 112 and 122 prevent the packing box 100 from being damaged due to collision between the corners of the packing box 100 and the surrounding environment during transportation or movement of the packing box 100, and also provide a buffering effect against external impact. In addition, the existence of the protection slopes 112 and 122 not only provides the packing box 100 with good structural stability, but also provides the packing box 100 with a novel and brand-new appearance.

[0025] FIG. 7 is a schematic three-dimensional diagram of a packing box in an opened state according to another embodiment of the disclosure. FIG. 8 is a schematic three-dimensional diagram of a packing box in a closed state according to another embodiment of the disclosure. It is to be noted herein that a packing box 100a of this embodiment is similar to the packing box of the foregoing embodiments. Therefore, the reference numerals and some contents of the foregoing embodiments also apply in this embodiment, where the same reference numerals are used to indicate the same or similar components, and the descriptions of the same technical contents are omitted. Reference may be made to the foregoing embodiments for the omitted parts, and the descriptions thereof are not repeated in this embodiment. Referring to FIG. 7 and FIG. 8, the difference between the packing box 100a of this embodiment and the packing box of the foregoing embodiments is described below.

[0026] Referring to FIG. 7 and FIG. 8, in this embodiment, the cover 110 further includes a top protection slope 115. The top protection slope 115 is connected between a top surface 116 of the cover 110 and a corresponding side surface 114, and forms an obtuse angle with the top surface 116 of the cover 110 and the corresponding side surface 114 respectively. With this configuration, the first lining partition 140 includes a slope 148 corresponding to the top protection

slope 115. The slope 148 forms an obtuse angle with a top surface 144 of the first lining partition 140, and is parallel to the top protection slope 115, so that the cover is smoothly covered on the box body 120. In this way, the top protection slope 115 prevents the cover 110 from being damaged due to collision between corners of the cover 110 and the surrounding environment during transportation or movement of the packing box 100a, and also provides a buffering effect against external impact. In addition, the existence of the top protection slope 115 not only provides the packing box 100a with good structural stability, but also provides the packing box 100a with a novel and brand-new appearance. In this embodiment, the top protection slopes 115 are respectively disposed on opposite sides (for example, left and right sides) of the top surface 116 of the cover 110, and are connected to the corresponding side surfaces 114 to form a symmetrical appearance. Definitely, the position and quantity of the top protection slopes 115 arranged are not limited in this embodiment. In some other embodiments, the top protection slopes 115 are respectively disposed on all sides (for example, four sides of the top surface 116) of the top surface 116 of the cover 110, to provide the cover with a diamond-like appearance.

[0027] FIG. 9 is a schematic diagram of some components of a packing box according to another embodiment of the disclosure. Referring to FIG. 9, similar to the configuration of the foregoing embodiments, in this embodiment, the cover 110 and the box body 120 are alternatively connected via the connecting plate 130. The connecting plate 130 is connected between the cover 110 and the box body 120 through bending as shown in FIG. 9, so that the cover 110 is adapted to rotate relative to the box body 120 to open and close. In an embodiment, the connecting plate 130 is bent along the central folding line 132. The two sides of the folding line 132 are attached to the cover 110 and the box body 120 respectively as shown in FIG. 9. In this way, the cover 110 and the box body 120 are relatively opened or closed via the folding line 132 of the connecting plate 130. With this configuration, when the packing box 100 connected via the connecting plate 130 is in an opened state as shown in FIG. 9, the box body 120 is slightly inclined due to pulling and lifting of the connecting plate 130, and forms an acute angle with a supporting plane (for example, a desktop). In other words, when the packing box 100 is in the opened state, the box body 120 is placed on the desktop in a slightly inclined manner, to achieve an effect of displaying a product (for example, the object ob1).

[0028] Based on the above, the packing box according to the embodiments of the disclosure includes the lining partition disposed in the box body. The lining partition is folded to form the step structure for holding an object. The lower surface of the step structure and the inner surface of the box body jointly form another accommodation space for accommodating another object. With this configuration, the lining partition with the step structure not only provides a designed appearance, but also improves the space utilization of the packing box. In addition, the box body and the cover of the packing box further include protection slopes corresponding to each other. The protection slopes are respectively connected between the two adjacent side surfaces of the box body and between the two adjacent side surfaces of the cover, and form an obtuse angle with the two adjacent side surfaces of the box body and with the two adjacent side surfaces of the cover respectively. With this configuration,

the protection slopes prevent the packing box from being damaged due to collision between sharp corners formed by the two adjacent side surfaces and the surrounding environment during transportation or movement. In addition, the existence of the protection slopes not only provides the packing box with good structural stability, but also provides the packing box with a novel and brand-new appearance.

[0029] Finally, it is to be noted that the foregoing embodiments are merely used for describing the technical solutions of the disclosure, but are not intended to limit the disclosure. Although the disclosure is described in detail with reference to the foregoing embodiments, a person of ordinary skill in the art is to understand that, modifications may still be made to the technical solutions in the foregoing embodiments, or equivalent replacements may be made to some or all of the technical features; and these modifications or replacements will not cause the essence of corresponding technical solutions to depart from the scope of the technical solutions in the embodiments of the disclosure.

What is claimed is:

1. A packing box, comprising:
 - a cover;
 - a box body;
 - a connecting plate, connected between the cover and the box body through bending, so that the cover is adapted to rotate relative to the box body to open and close; and
 - a first lining partition, disposed in the box body and folded to form a main space of a step structure, wherein a lower surface of the step structure and an inner surface of the box body jointly form a first accommodation space.
2. The packing box according to claim 1, wherein the first lining partition comprises a plurality of first lining partitions respectively disposed on opposite sides of the box body.
3. The packing box according to claim 1, wherein the first lining partition is integrally formed and folded.

4. The packing box according to claim 1, wherein the step structure comprises a top surface and a step platform surface lower than the top surface.

5. The packing box according to claim 4, wherein when viewed from a direction of a top view, the first accommodation space overlaps with the step platform surface.

6. The packing box according to claim 4, further comprising a second lining partition, disposed in the box body, and folded to form a second accommodation space together with the inner surface of the box body, wherein a top surface of the second lining partition is lower than the step platform surface or coplanar with the step platform surface.

7. The packing box according to claim 6, wherein an object is placed on the step platform surface and the top surface of the second lining partition.

8. The packing box according to claim 1, wherein the box body comprises a box body protection slope that is connected between two adjacent side surfaces of the box body and an obtuse angle is included between the two adjacent side surfaces of the box body respectively, and the cover comprises a cover protection slope that corresponds to the box body protection slope, that is connected between two adjacent side surfaces of the cover, and an obtuse angle is included between the two adjacent side surfaces of the cover respectively.

9. The packing box according to claim 1, wherein the cover further comprises a top protection slope that is connected between a top surface of the cover and a corresponding side surface and an obtuse angle is included between the top surface of the cover and the corresponding side surface respectively.

10. The packing box according to claim 9, wherein the first lining partition comprises a slope corresponding to the top protection slope, and an obtuse angle is included between the slope and a top surface of the first lining partition.

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