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(54) **FOLDING BOX FOR CARRYING**

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(57) **ABSTRACT**

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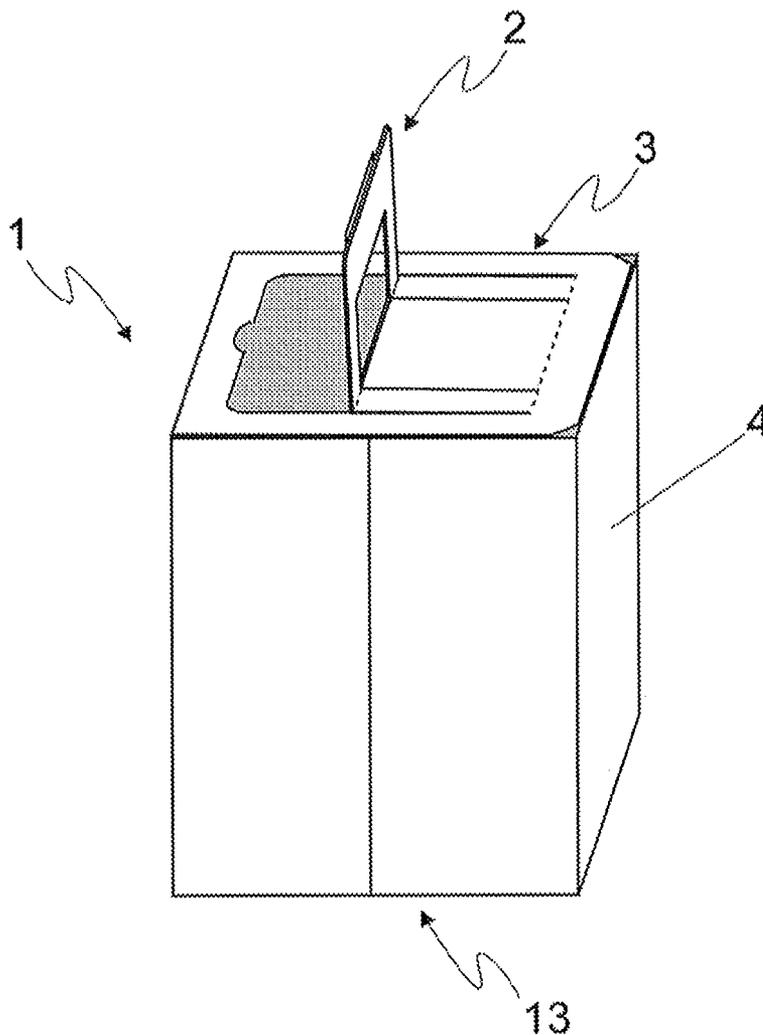
The present disclosure relates to a folding box for carrying, wherein a cover is constructed of an upper plane and a lower plane. A first handle can be folded from the upper plane and a second handle can be folded out of the lower plane in opposite directions so that the two undersides of the handles lie directly opposite one another in the folded-out position and together form the carrying handle for carrying the folding box for carrying. The punch-out of the handle from the lower plane of the cover can form an opening into the interior of the folding box for carrying, the opening being closeable by a closing lid punched out at the upper plane of the cover.

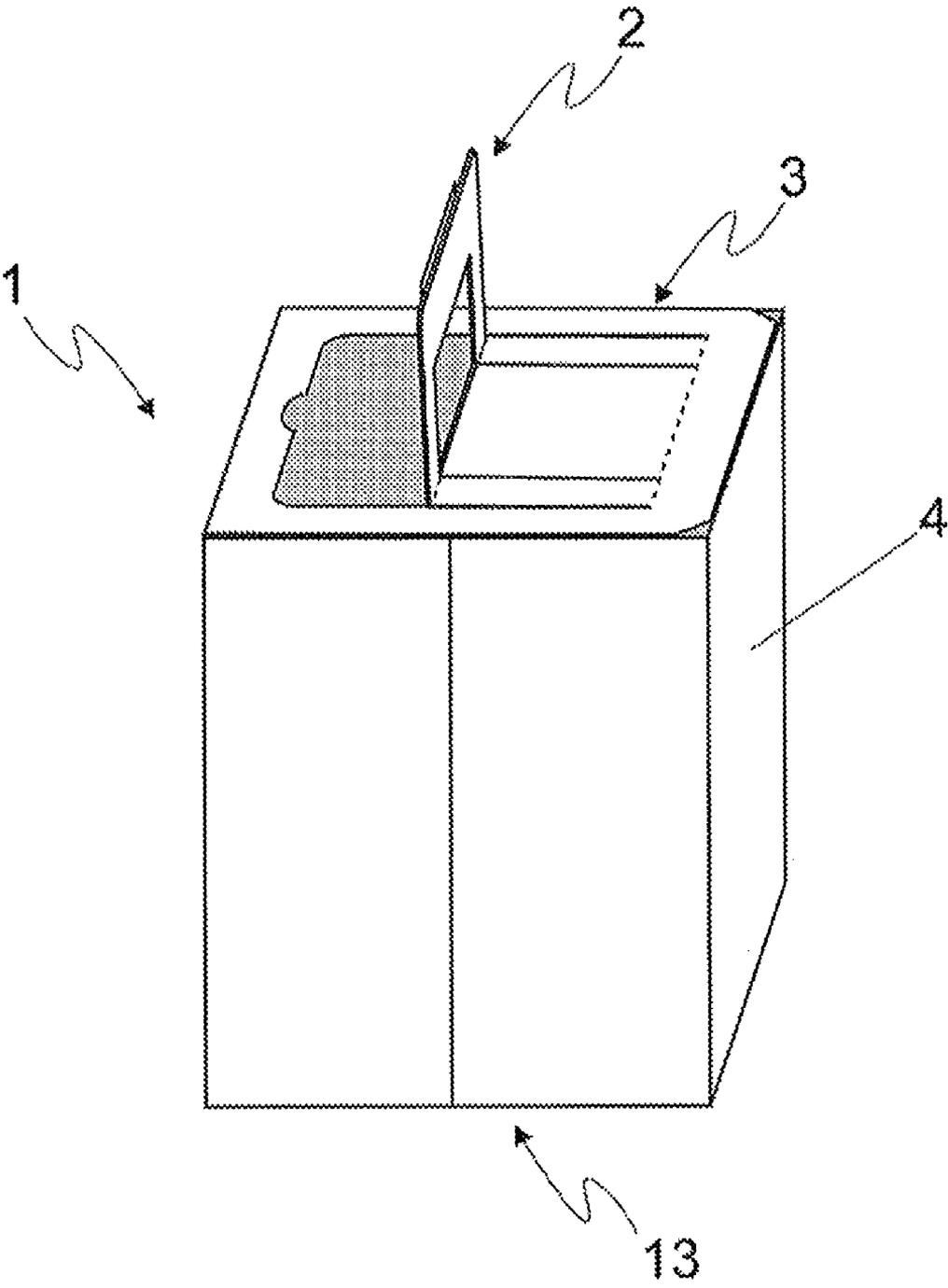
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**Related U.S. Application Data**

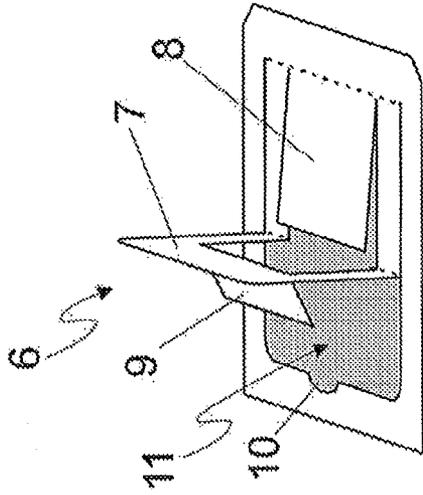
(63) Continuation of application No. PCT/EP2009/052993, filed on Mar. 13, 2009.



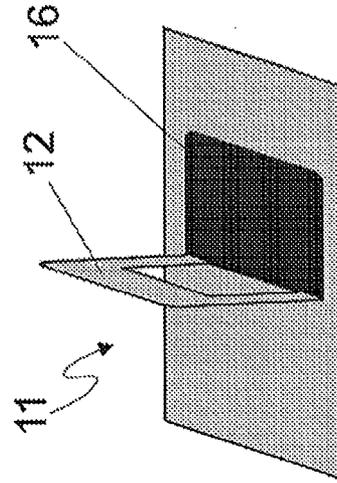


Figur 1

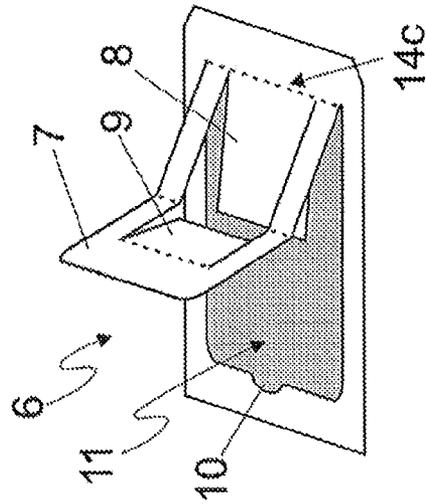




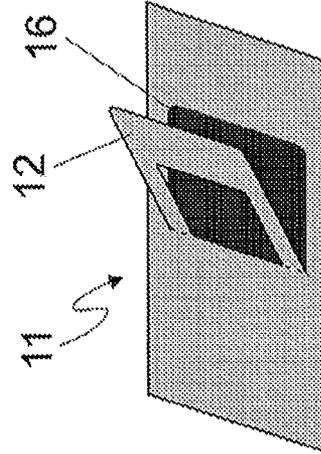
Figur 5a



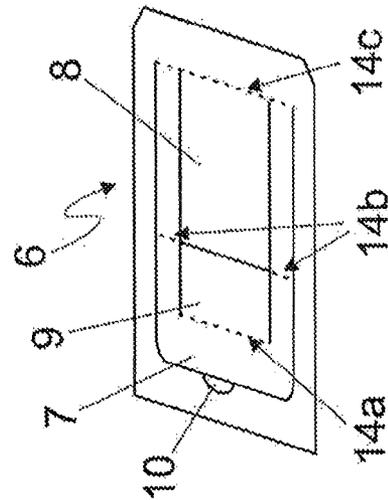
Figur 5b



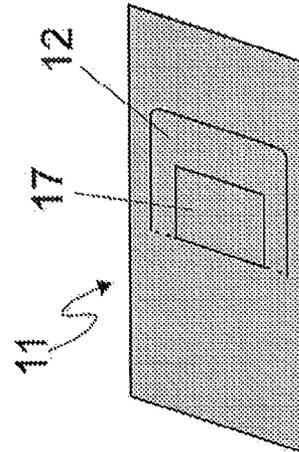
Figur 4a



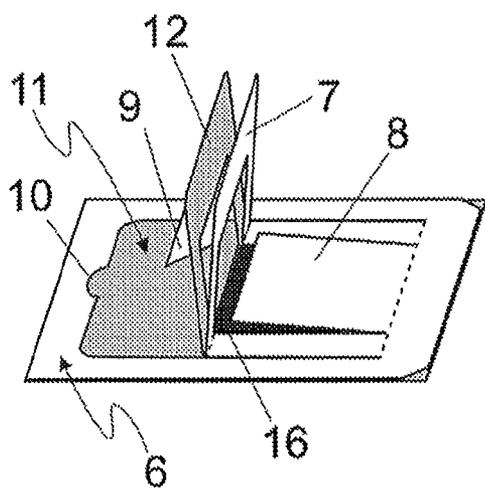
Figur 4b



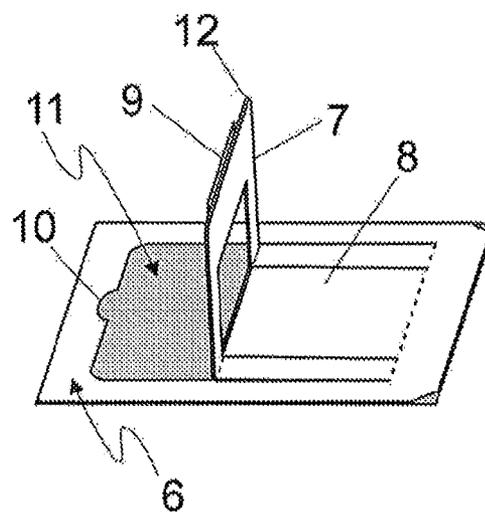
Figur 3a



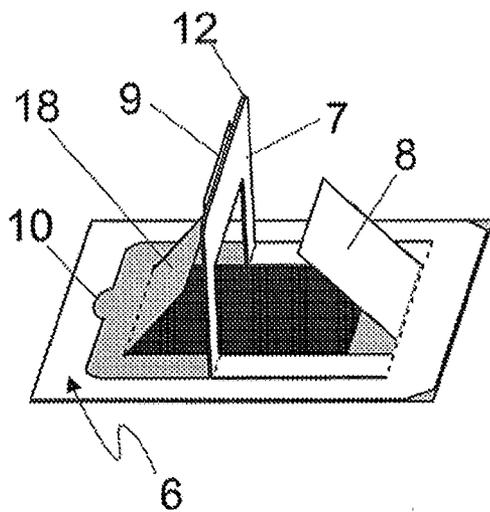
Figur 3b



Figur 6



Figur 7



Figur 8

**FOLDING BOX FOR CARRYING**

**RELATED APPLICATIONS**

[0001] This application claims priority as a continuation application under 35 U.S.C. §120 to PCT/EP2009/052993, which was filed as an International Application on Mar. 13, 2009 designating the U.S., and which claims priority to German Application 20 2008 003 559.7 filed in Germany on Mar. 13, 2008. The entire contents of these applications are hereby incorporated by reference in their entireties.

**FIELD**

[0002] The disclosure relates to a folding box for carrying, such as a box having a bottom, a box shell formed from side walls, and a cover.

**BACKGROUND INFORMATION**

[0003] There are known folding boxes for carrying in many different embodiments, which can be used in each case for different purposes. Folding boxes for carrying can be made, for example, of solid cardboard or corrugated cardboard.

[0004] For example, EP 0 774 418 A1 describes a folding box for carrying in which a carrying handle is formed from two flaps that lie on one another, which extensions are two opposite side walls. The folding box has an arrangement of the carrying handle on its top, such that it is not possible to stack these folding boxes for carrying on one another for, for example, transport.

[0005] In addition, for example, DE 297 05 904 U1 describes a folding box with a carrying device that consists of two handles, which in each case are folded out from a cover wall part. The folding box that is described is distinguished in that the handle from the lower cover wall part, which is attached by a punch-out in the upper cover wall part, holds the box together, which occurs without adhesive or other fasteners. The folding box cannot be closed without the handle being folded out or falling apart. As a result, such folding boxes are not suitable for being stacked on one another in large quantities for shipping. In addition, with the carrying device folded out, it has an unclosed opening extending into the interior of the box, by which the contents are not optimally protected.

**SUMMARY**

[0006] A folding box is disclosed, comprising: a bottom; a box shell that is formed from side walls; a cover with a carrying handle configured to be folded out for carrying the folding box, the cover being constructed from an upper plane and a lower plane, whereby a first handle from the upper plane and a second handle from the lower plane are foldable in opposite directions such that an underside of each of the first handle and the second handle, in folded-out positions lie directly opposite one another and together form the carrying handle for carrying the folding box; and a closing flap on the upper plane of the cover configured to close a punch-out opening of the second handle in an interior of the folding box.

**BRIEF DESCRIPTION OF THE DRAWINGS**

[0007] Based on the drawings set forth herein, embodiments of the disclosure are explained in more detail. The same elements are provided in the various figures with the same reference numbers. In the drawings:

[0008] FIG. 1 shows a diagrammatic representation of an exemplary folding box for carrying as disclosed herein;

[0009] FIG. 2 shows a diagrammatic representation of an exemplary stamped pre-cut shape;

[0010] FIG. 3a shows a diagrammatic representation of an exemplary upper plane of a cover of the folding box with a handle that is not folded out;

[0011] FIG. 3b shows a diagrammatic representation of an exemplary lower plane of the cover of the folding box with a handle that is not folded out;

[0012] FIG. 4a shows a diagrammatic representation of an exemplary upper plane of the cover of the folding box with a handle that is partially folded out;

[0013] FIG. 4b shows a diagrammatic representation of an exemplary lower plane of the cover of the folding box with a handle that is partially folded out;

[0014] FIG. 5a shows a diagrammatic representation of an exemplary upper plane of the cover of the folding box with a handle that is folded out;

[0015] FIG. 5b shows a diagrammatic representation of an exemplary lower plane of the cover of the folding box with a handle that is folded out;

[0016] FIG. 6 shows a diagrammatic representation of an exemplary cover of the folding box;

[0017] FIG. 7 shows a diagrammatic representation of an exemplary cover of the folding box; and

[0018] FIG. 8 shows a diagrammatic representation of an exemplary cover of the folding box with an optional second closing flap.

[0019] All elements that are essential for direct understanding of exemplary embodiments of the disclosure are shown.

**DETAILED DESCRIPTION**

[0020] A preparation process and configuration of a folding box for carrying are disclosed, which box can for example be stacked and has a closable opening in an interior of the box.

[0021] An exemplary folding box for carrying is disclosed which includes (e.g., consists of) a bottom and a box shell that is formed from side walls, as well as a cover with a carrying handle that can be folded out for carrying the folding box for carrying. The cover can be constructed from an upper plane and a lower plane, whereby a first handle from the upper plane and a second handle from the lower plane can be folded out in opposite directions in such a way that the two undersides of the handles in folded-out position lie directly opposite one another and together form the carrying handle for carrying the folding box for carrying. A punch-out of the handle from the lower plane of the cover forms an opening in the interior of the folding box for carrying, which can be closed by a closing flap, which is punched out on the upper plane of the cover.

[0022] In an exemplary embodiment, the folding box can have a carrying handle that can be folded out. Because the carrying handle is formed by simple punch-outs from the two planes of the cover, the folding box can be produced very simply, quickly, and, moreover, economically in an existing folding-box gluing machine.

[0023] When filling and shipping the filled folding boxes for dispatch to customers or to the market, the carrying handle can remain folded in, so that the folding box can be handled as a standard folding box design without a carrying handle (for example, according to "European Federation of Corrugated Board Manufacturers" FEFCO 0201). Accordingly, using known techniques to those skilled in the art, an exemplary

folding box as disclosed herein can be assembled, filled, closed and palletized by an existing cartoner and packing robot.

[0024] The carrying handle can be folded out, only if desired, and thus has a non-disturbing effect on the upstream logistical developments. In addition, the carrying handle can be very simply folded in again if desired.

[0025] Exemplary embodiments of the folding box can be completely closed both in a non-folded-out carrying handle configuration and in a folded-out carrying handle configuration, and can have an opening in the interior of the folding box for carrying, which can be closed by a closing flap. As a result, the box content can be always optimally protected, but it can nevertheless be easily removed, if desired.

[0026] FIG. 1 diagrammatically shows an exemplary folding box for carrying 1 that includes (e.g., consists of) a bottom 13 and a box shell 4 that is formed from the side walls 15, as well as a cover 3 with a carrying handle 2 that is folded out to carry the folding box. Because of the cover that is formed from two planes, the folding box for carrying can be completely closed even when the carrying handle is folded out, so that its contents can be always protected during transport. For example, the folding box for carrying 1 can have the structure of a cuboid or a cube or other suitable structure. For example, the box can have the structure of a cuboid with two square base areas (e.g., with a square bottom 13 and a square cover 3).

[0027] FIG. 2 diagrammatically shows an exemplary one-piece stamped pre-cut shape 5, from which the folding box for carrying 1 can be produced or assembled. In principle, the stamped pre-cut shape can be configured both in one part or in several parts. If the stamped pre-cut shape is in multiple parts, the individual parts can be connected to one another to produce the folding box for carrying. This can be carried out, for example, by means of an adhesive agent such as an adhesive or adhesive tape, or by means of fastening agents at points, such as riveting, stapling, or the like. The stamped pre-cut shape, as it is depicted in FIG. 2, is for example, in one piece.

[0028] The production of the folding box for carrying 1 from a one-piece stamped pre-cut shape 5 can be done by folding the stamped pre-cut shape 5 along the fold lines 14 or foldable locations and by subsequent adhesive or fastening, in other ways, of the straps 19a of the bottom 13 and the straps 19b of the lower plane 11 of the cover on the inside of the wings of the side walls 15. For finishing the folding box for carrying 1, the upper plane 6 of the cover can be connected—for example, glued or stapled—to its edge area with the lower plane 11 of the cover.

[0029] The filling of the folding box for carrying 1 with its contents can be performed during the production of the folding box. For example, it can be maintained with the adhesion of the straps 19b of the lower plane 11 of the cover and with the gluing of the upper plane 6 until the folding box for carrying has been filled. Another exemplary possibility is that the wings 20 of one of the side walls 15 can be glued after the filling with the strap 19a of the bottom 13 and that of the lower plane of the cover 11. Of course, the folding box for carrying can also be filled through the opening in the interior of the box 16, whereby in this case, the carrying handle 2 is folded out and the closing flap 8 has to be opened. This type of filling of the folding box for carrying is suitable, for example in the recycling of the folding box for carrying after its original contents have been emptied.

[0030] The folding box for carrying can be made of different materials. If the box material itself is foldable, optionally by creating fold lines, the parts that are connected to one another by a fold line can be designed in one piece. If the box material itself cannot be folded, the movable parts can be connected to one another by a foldable connecting piece. For example, in this case, two adjacent, rigid surfaces can be fastened to one another with adhesive tape and thus form a foldable element, whereby it will be clear to those skilled in the art that depending on in which direction the element is folded, a seam between the surface parts can be left free so that a fold is actually possible. For example, the box material can be cardboard, such as solid cardboard or solid or corrugated cardboard, paper, wood, metal, (e.g., light metal), plastic such as polyvinyl chloride, polyethylene terephthalate, polyethylene, polypropylene, polymethyl(meth)acrylate or polystyrene, fiber composite material or the like. In exemplary embodiments, the box material is cardboard, such as corrugated cardboard. The cardboard of the folding box for carrying can be optionally coated with a film, for example an adhesive film, or a finish. This is the case, for example, when the folding box is to protect its contents from spray or rain.

[0031] For simplified illustration, FIGS. 3a to 8 show only the cover 3 of the folding box for carrying 1. In FIGS. 3a to 5b, moreover, the upper plane 6 of the cover and the lower plane 11 of the cover are shown separately from one another. In an exemplary folding box according to the disclosure, the upper plane 6 and the lower plane 11 are connected to one another—e.g., glued or stapled together—along an edge.

[0032] FIG. 3a shows the upper plane 6 of the cover; FIG. 3b shows the lower plane 11 of the cover before the carrying handle 2 was folded out. The solid lines in this case show locations at which the box material has been completely cut through during the production of the stamped pre-cut shape 5. The dotted lines show fold lines 14, along which the folding of the box material, for example by perforation here and there, is simplified.

[0033] The finger hole punch-out 10 makes it easier to fold it out when folding out the handle 7 of the upper plane 6 for the first time. When folding out the first handle 7 from the upper plane 6, the latter is folded out in a first step on the rear fold line 14c. As a result, the access to the lower plane 11 and thus also to the second handle 12 of the lower plane is made possible. In a subsequent state, the handle 7 is folded along the fold line 14b. For example, the handle 7 and the handle 12 have the same shaping.

[0034] The punch-out 17 for forming the handle 12 of the lower plane 11, as it is shown in FIG. 3b, can be completely removed from the lower plane with the first-time use of the folding box for carrying 1. As a result, the folding out of the handle 12 from the lower plane is facilitated.

[0035] FIG. 4a shows the partially folded-out handle 7 of the upper plane 6 as well as the closing flap 8 that can be folded out along the rear fold line 14c for access to the interior of the folding box for carrying 1 and the finger protection 9 that can be folded around along the fold line 14a. By the opening that is produced in the upper plane of the cover, the lower plane 11 can be seen, whereby the latter is shown for simple illustration in its starting state with the handle 12 that is not yet folded out.

[0036] FIG. 4b shows the lower plane 11 with the handle 12 that is partially folded out along the fold line on the lower plane. At the point where the handle 12 and the punch-out 17 were to form the handle 12 in the lower plane 11, the opening

can be detected in the interior of the box 16, through which contents can be removed from or added to the folding box for carrying.

[0037] FIG. 5a shows the handle 7 of the upper plane 6; FIG. 5b shows the handle 12 of the lower plane 11 in the respective positions as they should be arranged for forming the carrying handle 2.

[0038] FIG. 6 shows the upper plane 6 of the cover 3, as it is arranged with a folded-out handle 7 on the lower plane 11 of the cover 3 with the handle 12 that is also folded out. In this case, the finger protection 9 has already been run through the punch-out 17, but it was still not completely folded up. The closing flap 8 is shown slightly open.

[0039] FIG. 7 shows the cover 3 of the folding box for carrying 1, whereby the handle 7 of the upper plane 6, the handle 9 of the lower plane 11, and the finger protection 9 are arranged in such a way that together they form the carrying handle 2 of the folding box for carrying 1.

[0040] FIG. 8 shows another embodiment of the cover 3 of the folding box for carrying 1, whereby in the lower plane 11 of the cover, another optional closing flap 18 is designed. Such an optional closing flap 18 can facilitate the removal of contents from the folding box for carrying or the filling of the folding box for carrying.

[0041] An exemplary folding box for carrying 1 according to the disclosure is suitable, for example, as packing for materials that, on the one hand, are shipped in bulk, but later are transported in smaller units. The folding box for carrying is especially suitable for this purpose, since it can be stacked in any order with carrying handles that are not folded out and then is individually very manageable for transporting with a folded-out carrying handle 2. In this case, through the opening in the cover 3, units of transported materials can be removed again or added again and, nevertheless, the contents of the box can remain protected by the closing flap 8. Of course, the materials that are transported in the folding box according to the disclosure should be provided in their dimensions in such a way that they can be removed through the opening into the interior of the box 16 or optionally by opening the optional closing flap 18. For example, such materials include adhesive or sealant cartridges or refill bags for application guns for adhesives and sealants.

[0042] It will be appreciated by those skilled in the art that the present invention can be embodied in other specific forms without departing from the spirit or essential characteristics thereof. The presently disclosed embodiments are therefore considered in all respects to be illustrative and not restricted. The scope of the invention is indicated by the appended claims rather than the foregoing description and all changes that come within the meaning and range and equivalence thereof are intended to be embraced therein.

REFERENCE SYMBOL LIST

- [0043] 1 Folding box for carrying
- [0044] 2 Carrying handle

- [0045] 3 Cover
- [0046] 4 Box shell
- [0047] 5 Stamped pre-cut shape
- [0048] 6 Upper plane (cover)
- [0049] 7 Handle (upper plane)
- [0050] 8 Closing flap
- [0051] 9 Finger protection
- [0052] 10 Finger hole punch-out
- [0053] 11 Lower plane (cover)
- [0054] 12 Handle (lower plane)
- [0055] 13 Bottom
- [0056] 14 Fold line
- [0057] 14a Fold line
- [0058] 14b Fold line
- [0059] 14c Fold line
- [0060] 15 Side wall
- [0061] 16 Interior of the box
- [0062] 17 Punch-out
- [0063] 18 Closing flap
- [0064] 19a Strap
- [0065] 19b Strap
- [0066] 20 Wing

What is claimed is:

1. Folding box, comprising:
  - a bottom;
  - a box shell that is formed from side walls;
  - a cover with a carrying handle configured to be folded out for carrying the folding box, the cover being constructed from an upper plane and a lower plane, whereby a first handle from the upper plane and a second handle from the lower plane are foldable in opposite directions such that an underside of each of the first handle and the second handle, in folded-out positions lie directly opposite one another and together form the carrying handle for carrying the folding box; and
  - a closing flap on the upper plane of the cover configured to close a punch-out opening of the second handle in an interior of the folding box.
2. Folding box for carrying according to claim 1, wherein the upper plane is connected to the lower plane along an edge.
3. Folding box according to claim 1, wherein the folding box is made of cardboard.
4. Folding box for carrying according to claim 1, wherein the folding box consists of a one-piece stamped pre-cut shape.
5. Folding box according claim 1, comprising:
  - an additional closing flap on the cover.
6. Folding box according to claim 5, wherein the additional closing flap is on the lower plane.
7. Folding box according to claim 1, where the underside of each the first handle and the second handle are in full contact with one another in their folded-out positions.

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