



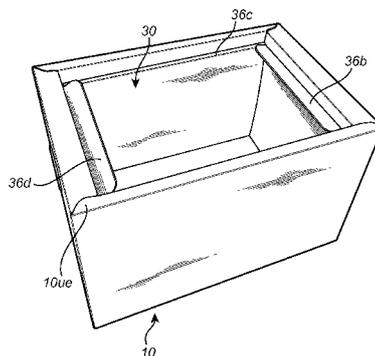
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- (73) Patentee: Stora Enso OYJ, P.O. Box 309, 00101 Helsinki FI  
 (72) Inventor: Outi Honkavaara, Lahti FI  
 (74) Agent: Susanna KLING, Stora Enso ABGroup IP Box 9090, 650 09, Karlstad SE  
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 (57) Abstract:

An insulated container (1) to be used for transporting hot or cold items, the insulated container (1) comprising: an outer box (10) of a paper based box blank (10a; 10b) folded into a box (10) having an open top (16); an insulating sleeve (20) being positioned inside the outer box (10) and being formed of a paper based sleeve blank (20a; 20b) folded into a sleeve (20); a tray (30) being positioned inside the insulating sleeve (20) and being formed of a paper based tray blank (30a; 30b), which is folded into a tray (30), which is provided with a plurality of corner panel portions (CPA, CPB, CPC, CPD) each interconnecting two panels forming adjacent side walls (31-34), and which has a moisture barrier (37) on a major surface (30a1; 30b1) forming an inside surface (30i) of the insulated container (1).



ABSTRACT

An insulated container (1) to be used for transporting hot or cold items, the insulated container (1) comprising: an outer box (10) of a paper based  
5 box blank (10a; 10b) folded into a box (10) having an open top (16); an  
insulating sleeve (20) being positioned inside the outer box (10) and being  
formed of a paper based sleeve blank (20a; 20b) folded into a sleeve (20); a  
tray (30) being positioned inside the insulating sleeve (20) and being formed  
of a paper based tray blank (30a; 30b), which is folded into a tray (30), which  
10 is provided with a plurality of corner panel portions (CPA, CPB, CPC, CPD)  
each interconnecting two panels forming adjacent side walls (31-34), and  
which has a moisture barrier (37) on a major surface (30a1; 30b1) forming an  
inside surface (30i) of the insulated container (1).

## INSULATED CONTAINER

### Field of invention

The invention relates to an insulated container.

5

### Technical Background

It is known to transport various products, such as food and drinks, in so-called ice chests or ice boxes when it is desired that the product is kept in a cooled state. This may e.g. be the situation when a family is on a picnic and would like to keep their picnic food, such as sandwiches, and drinks cooled. Ice boxes are also used in a number of different commercial applications for transportation of products in a cooled state. It may e.g. be used when transporting fish. Ice boxes are typically used where it is difficult to securely maintain a continuous chain of active refrigeration.

15 Ice boxes of today are typically formed of an expanded or foamed polymeric material. Such ice boxes are e.g. disclosed in US 2,552,641 and in US 3,028,042. The boxes are rigid and are typically used over and over.

It is also common to use rigid boxes formed of expanded polystyrene in food logistics where reuse of boxes is forbidden for hygiene reasons and the packaging has to be put into landfill waste after one use.

20 However, the boxes discussed above are all associated with some common drawbacks. For instance, when the boxes are transported from the box manufacturer to the user sites, where they are about to be filled with products and used for transportation of cooled products, they require basically the same transportation volume as they require when they are used for transportation of cooled products. Moreover, at the user site there must also be provided significant storage space to accommodate the still unfilled boxes.

### Summary of invention

30 It is an object of the invention to address the above mentioned drawbacks with the above discussed ice boxes.

This object has been achieved by an insulated container to be used for transporting hot or cold items, the insulated container comprising:

an outer box of a paper based box blank folded into a box having a bottom panel, side walls extending upwardly from the bottom panel, and an open top,

an insulating sleeve or box with an open top, the sleeve or box being  
5 positioned inside the outer box and being formed of a paper based sleeve blank folded into a sleeve or box having side walls,

a tray being positioned inside the insulating sleeve, the tray being formed of a paper based tray blank,

10 which is folded into a tray having a bottom panel and side walls extending upwardly from the bottom panel,

which is provided with a plurality of corner panel portions each interconnecting two panels forming adjacent side walls, and

which has a moisture barrier on a major surface forming an inside surface of the insulated container,

15 and

a lid having a bottom surface and a top surface,

wherein the lid is formed of a paper based lid blank being folded into a box having a bottom panel forming said bottom surface, a top panel forming said top surface, and a plurality of side walls, the side walls interconnecting  
20 the bottom panel to the top panel with a distance provided between the bottom panel and the top panel,

wherein the lid has an outer circumferential extension and the outer box has an inner circumferential extension, wherein shapes and dimensions of the outer circumferential extension of the lid and the inner circumferential  
25 extension of the outer box are chosen such that the lid is at least partly receivable into the outer box with the bottom surface of the lid facing the bottom panel of the tray,

wherein the tray has an upwardly facing abutment portion configured to be abutted by the bottom surface of the lid, and

30 wherein the abutment portion of the tray is positioned at a first height, as seen from the bottom panel of the outer box, the first height being below a height of an upper edge of the side walls of the outer box.

Since those components of the insulated container which when in use occupy a significant volume are made paper based blanks, the transport to the user site and the storage of the insulated containers at the user site is space efficient. The components made from paper based blanks may be transported and stored in their flat-laid state and may be folded or erected to form the components of the insulated container just before the insulated container is to be used. Moreover, paper-based materials have a globally organized collection and recycling system and this is yet a further advantage from an environmental perspective. It may be noted that the insulating sleeve may be a sleeve having side walls and being open in both top and bottom. Alternatively, it may be an insulating box with an open top, i.e. a box having side walls and a bottom, with the side walls extending upwardly from the bottom.

The lid is formed of a paper based lid blank being folded into a box having a bottom panel forming said bottom surface, a top panel forming said top surface, and a plurality of side walls, the side walls interconnecting the bottom panel to the top panel with a distance provided between the bottom panel and the top panel. This is advantageous since also the lid may be transported and stored in a flat-laid state and may be folded or erected into a box just before the insulated container is to be used.

The lid has an outer circumferential extension and the outer box has an inner circumferential extension, wherein shapes and dimensions of the outer circumferential extension of the lid and the inner circumferential extension of the outer box are chosen such that the lid is at least partly receivable into the outer box with the bottom surface of the lid facing the bottom panel of the tray. Thereby will the lid be kept securely in position relative to the outer box. Moreover, if the lid is provided with a cooling functionality, such as being packed with ice inside a box shaped lid or if the lid is formed as or contains an ice pack, or if the lid is packed with an insulating material, the fact that the lid is at least partly received into the outer box aids in keeping the cold, such as cold from the lid, inside the insulated container.

The tray has an upwardly facing abutment portion configured to be abutted by the bottom surface of the lid. The lid is thereby kept at the intended height relative to the tray. Moreover, by having the bottom surface of the lid abutting the tray it is comparably easy to secure that a relatively tight

connection is achieved between the tray and the lid such that a closed compartment effectively retaining the cold is formed.

The abutment portion of the tray is positioned at a first height, as seen from the bottom panel of the outer box, the first height being below a height of  
5 an upper edge of the side walls of the outer box. Thereby will the bottom surface of the lid be positioned inside the outer box. Thereby will the lid be kept securely in position relative to the outer box. Moreover, if the lid is provided with a cooling functionality, such as being packed with ice inside a box shaped lid or if the lid is formed as or contains an ice pack, the fact that  
10 the bottom surface will be positioned inside the outer box aids in keeping the cold from the lid inside the insulated container.

Preferred embodiments appear in the dependent claims and in the description.

The sleeve blank preferably comprises four major panels  
15 interconnected and arranged one after the other along a main direction, wherein the major panels are configured to be folded relative to each other and be positioned inside the outer box such that each major panel extend along an associated side wall of the outer box and with the main direction extending circumferentially along an inside of the outer box. Such a design is  
20 space efficient and is easy to erect into a sleeve.

The sleeve blank is preferably further provided with at least four additional panels, wherein each major panel is associated with at least one additional panel being positioned, as seen along the major direction, alongside respective major panel, wherein the additional panels are  
25 configured to be folded relative to each other and relative to the major panels such that the sleeve when inserted inside the outer box is at least double walled along each side wall of the outer box. Such a design makes it possible to provide an improved insulation capacity in while still being a space efficient and easy to erect into a sleeve.

30 The insulating sleeve is preferably made of corrugated paper board. This is easy to manufacture and provides good insulating properties relative to the thickness of the blank.

The moisture barrier on the tray blank is preferably waterproof and leak-tight. The moisture barrier on the tray blank is preferably polymer based. This is easy to manufacture, it provides good moisture barrier and there is a great variety of known polymers to choose from depending on other demands  
5 apart from the moisture barrier. There is e.g. a known selection of polymer grades that are regarded as food grade. There is e.g. a known selection of polymer grades that are regarded as sufficiently tight for transporting bio hazardous waste or bio hazardous tissue sample. The exact choice of polymer grade is dependent upon how the insulated container is intended to  
10 be used and the different polymer grades suitable for the various uses is known to a person skilled in the art.

The outer box has a first outer circumference at an upper edge of the side walls and a second outer circumference at the bottom panel, wherein the first outer circumference is preferably greater than the second outer  
15 circumference. This is a convenient manner of providing internal space for internal handles within the outer circumference of the outer box while still securing that the sleeve is kept at the intended position by abutting the side walls of the box close to the bottom panel. Moreover, the internal space thus formed also acts as an insulator in that it holds a volume of air standing still  
20 inside this volume.

The outer box blank is preferably provided with top wall panels being connected to the side walls and being configured to be folded relative to the side walls and form an upwardly facing, inwardly extending upper rim surface around the open top of the outer box. This upper rim surface is in one use  
25 scenario used as supporting surface allowing other boxes to be stacked on top of this box. The inner edges of the rim are preferably used to position the lid in the intended position along the horizontal plane.

The invention may alternatively in short be said to relate to an insulated container to be used for transporting hot or cold items, the insulated container  
30 comprising: an outer box of a paper based box blank folded into a box having an open top; an insulating sleeve being positioned inside the outer box and being formed of a paper based sleeve blank folded into a sleeve; a tray being positioned inside the insulating sleeve and being formed of a paper based

tray blank, which is folded into a tray, which is provided with a plurality of corner panel portions each interconnecting two panels forming adjacent side walls, and which has a moisture barrier on a major surface forming an inside surface of the insulated container.

5

Brief description of the drawings

The invention will by way of example be described in more detail with reference to the appended schematic drawings, which shows a presently preferred embodiment of the invention.

10

Figure 1 is a perspective view of an outer box.

Figure 2 is a perspective view of an insulating sleeve.

Figure 3 is a perspective view of a tray.

Figure 4 is a perspective view of a lid.

15 Figure 5 is a perspective view of the tray being positioned inside the insulating sleeve.

Figure 6 is a perspective view of the tray and the insulating sleeve being positioned inside the outer box.

20 Figure 7 is a perspective view of the insulated container formed of the tray and the insulating sleeve being positioned inside the outer box and also being provided with a lid.

Figure 8 is box blank intended to be folded to form an outer box according to a first embodiment.

Figure 9 is a sleeve blank intended to be folded to form an insulating sleeve according to a first embodiment.

25 Figure 10 is a tray blank intended to be folded to form a tray according to a first embodiment.

Figure 11 is a lid blank intended to be folded to form a lid according to a first embodiment.

30 Figure 12 is box blank intended to be folded to form an outer box according to a second embodiment.

Figure 13 is a sleeve blank intended to be folded to form an insulating sleeve according to a second embodiment.

Figure 14 is a tray blank intended to be folded to form a tray according to a second embodiment.

35 Figure 15 is a lid blank intended to be folded to form a lid according to a second embodiment.

### Detailed description of preferred embodiments

The insulated container 1 shown in figure 7 comprises in short an outer box 10 (as e.g. shown in figure 1), an insulating sleeve 20 (as e.g. shown in figure 2), a tray 30 (as e.g. shown in figure 3), and a lid (as e.g. shown in figure 4). The insulated container 1 intended to be used for transporting hot or cold items.

The outer box 10 is formed of a paper based box blank 10a; 10b. In figure 8 such a paper based box blank 10a according to a first embodiment is disclosed. In figure 12 such a paper based box blank 10b according to a second embodiment is disclosed.

It may be noted that through-out the description and in the drawings, the same reference numeral will generally be used for corresponding features of the blanks according to the first embodiments and according to the second embodiments. Specific reference numerals will be used when there - for the purpose of facilitating understanding of the disclosure - is considered relevant to make a distinction between a feature of a blank according any of the first embodiments and a feature of a blank according to any of the second embodiments.

The blanks 10a, 10b are intended to be folded into a box 10 having a bottom panel 15, side walls 11-14 extending upwardly H from the bottom panel 15, and an open top 16. The blank 10a may, as shown in figure 8, be formed of a set of side wall panels 11-14 be interconnected and arranged side by side along a main extension L of the blank 10a. The bottom panel 15 is in this blank 10a formed of a plurality of bottom panel 15 forming flaps 15a-d. The blank 10b may alternatively, as shown in figure 12, be formed of a central bottom panel 15 to which the side walls 11-14 are interconnected and extend in four different, mutually orthogonal directions.

The insulating sleeve or box 20 is intended to be positioned inside the outer box 10. The insulating sleeve or box 20 is formed of a paper based sleeve blank 20a; 20b In figure 9 such a paper based sleeve blank 20a according to a first embodiment is disclosed. In figure 13 such a paper based sleeve blank 20b according to a second embodiment is disclosed. The sleeve blank 20a; 20b is intended to be folded or erected into a sleeve or box 20 having side walls 21-24 and preferably also a bottom 25. The side walls 11-14

of the outer box 10 are associated with a respective one of the side walls 21-24 of the sleeve 20.

The sleeve blank 20a; 20b comprises four major panels 21a-24a interconnected and arranged one after the other along a main direction MD, wherein the major panels 21a-24a are configured to be folded relative to each other and be positioned inside the outer box 10 such that each major panel 21a-24a extend along an associated side wall 11-14 of the outer box 10 and with the main direction MD extending circumferentially C along an inside 10i of the outer box 10. Such a design is space efficient and is easy to erect into a sleeve 20.

The sleeve blank 20 is further provided with at least four additional panels 21b-24b, 21c-24c, wherein each major panel 21a-24a is associated with at least one additional panel 21b-24b, 21c-24c being positioned, as seen along the major direction MD, alongside respective major panel 21-24. The additional panels 21b-24b, 21c-24c are configured to be folded relative to each other 21b-24b, 21c-24c and relative to the major panels 21a-24a such that the sleeve 20 when inserted inside the outer box 10 is at least double walled along each side wall 11-14 of the outer box 10. Such a design makes it possible to provide an improved insulation capacity in while still being a space efficient and easy to erect into a sleeve 20. Some or all of the additional panels 21c-24c may be used to provide a bottom 25 in the sleeve 20 such that the insulating sleeve becomes an insulating box 20 having a bottom 25 and side walls 21-14 (as e.g. shown in figure 2).

The insulating sleeve 20 is made of corrugated paper board. This is easy to manufacture and provides good insulating properties relative to the thickness of the blank 20a; 20b.

The tray 30 is intended to be positioned inside the insulating sleeve 20. The tray 30 is formed of a paper based tray blank 30a; 30b. In figure 10 such a paper based tray blank 30a according to a first embodiment is disclosed. In figure 14 such a paper based tray blank 30b according to a second embodiment is disclosed. The tray blank 30a; 30b is intended to be folded or erected into a tray 30 having a bottom panel 35 and side walls 31-34 extending upwardly H from the bottom panel 35. As shown in figures 10 and

14, the side walls 31-34 are interconnected to the bottom panel 35 and extend in the flat-laid state in four different, mutually orthogonal directions therefrom. The tray blanks 30a, 30b are also provided with a plurality of corner panel portions CPA, CPB, CPC, CPD each interconnecting two panels  
5 forming adjacent side walls 31-34. The corner panels portions CPA, CPB, CPC, CPD each form continuous portions interconnecting the two panels to which each corner panel portion CPA, CPB, CPC, CPD is associated. The corner panel portion CPA is e.g. associated with the first side wall 31 and the second side wall 32. Each corner panel portion CPA, CPB, CPC, CPD  
10 comprises an internal fold line CPAL, CPBL, CPCL, CPDL bisecting the angle formed by the directions along which the associated side walls 31-34 extend. The corner panel CPA comprises e.g. a fold line CPAL extending along a direction CPAL' bisecting the angle formed by the direction 31' along which the first side wall 31 extends from the bottom panel 35 and the direction 32'  
15 along which the second side wall 32 extends from the bottom panel 35. Each corner panel portion CPA, CPB, CPC, CPD has a height Ch as seen from the bottom panel 35 along which height Ch there is an interconnection between the side wall panels 31-34 and the corner panel portion CPA, CPB, CPC, CPD. In the preferred embodiment the height Ch is equal to the extension of  
20 the side walls 31-34 along the upward direction H. The corner panel portions CPA, CPB, CPC, CPD are internally folded about their respective internal fold line CPAL, CPBL, CPCL, CPDL and about the fold lines along which respective corner panel portion CPA, CPB, CPC, CPD is interconnected with its two associated side walls 31-34. In the preferred embodiment, the corner  
25 panel portions CPA, CPB, CPC, CPD are folded towards an outside of the tray 30 as shown in figure 3. The tray blank 30a, 30b has a moisture barrier 37 on a major surface 30a1; 30b1 forming an inside surface 30i of the insulated container 1. The moisture barrier 37 on the tray blank 30 is waterproof and leak-tight. The moisture barrier 37 on the tray blank 30a; 30b  
30 is polymer based. This is easy to manufacture, it provides good moisture barrier and there is a great variety of known polymers to choose from depending on other demands apart from the moisture barrier. There is e.g. a known selection of polymer grades that are regarded as food grade. There is

e.g. a known selection of polymer grades that are regarded as sufficiently tight for transporting bio hazardous waste or bio hazardous tissue sample. The exact choice of polymer grade is dependent upon how the insulated container 1 is intended to be used and the different polymer grades suitable for the various uses is known to a person skilled in the art.

The lid 40 has a bottom surface 45' and a top surface 46'. The lid 40 is formed of a paper based lid blank 40a; 40b. In figure 11 such a paper based lid blank 40a according to a first embodiment is disclosed. In figure 15 such a paper based lid blank 40b according to a second embodiment is disclosed.

10 The lid blank 40a, 40b is intended to be folded or erected into a box 40 having a bottom panel 45 forming said bottom surface 45', a top panel 46 forming said top surface 46', and a plurality of side walls 41-44, the side walls interconnecting the bottom panel 45 to the top panel 46 with a distance h40 provided between the bottom panel 45 and the top panel 46.

15 Since the outer box 10, the sleeve 20, the tray 30 and in the preferred embodiment also the lid 40 are made paper based blanks 10a; 10b, 20a; 20b, 30a; 30b, 40a;40b, the transport to the user site and the storage of the insulated containers 1 at the user site is space efficient. The components 10, 20, 30, 40 made from paper based blanks 10a; 10b; 10b, 20a; 20b, 30a; 30b, 20 40a;40b may be transported and stored in their flat-laid state and may be may be folded or erected to form the components 10, 20, 30, 40 of the insulated container 1 just before the insulated container 1 is to be used.

The lid 40 has an outer circumferential extension C40o and the outer box 10 has an inner circumferential extension C10i, wherein shapes and 25 dimensions of the outer circumferential extension C40o of the lid 40 and the inner circumferential extension C10i of the outer box 10 are chosen such that the lid 40 is (as shown in figure 7) at least partly receivable into the outer box 10 with the bottom surface 45' of the lid 40 facing the bottom panel 35 of the tray 30. Thereby will the lid 40 be kept securely in position relative to the outer 30 box 10. Moreover, if the lid 40 is provided with a cooling functionality, such as being packed with ice inside a box shaped lid or if the lid is formed as or contains an ice pack, the fact that the lid is at least partly received into the

outer box 10 aids in keeping the cold from the lid 40 inside the insulated container 1.

As shown in figure 5 and 6, the tray 30 has an upwardly facing abutment portion 36a-d configured to be abutted by the bottom surface 45' of the lid 40. The lid 40 is thereby kept at the intended height relative to the tray 30. Moreover, by having the bottom surface 45' of the lid 40 abutting the tray 36a-d it is comparably easy to secure that a relatively tight connection is achieved between the tray 30 and the lid 40 such that a closed compartment effectively retaining the cold is formed.

The abutment portion 36a-d of the tray 30 is positioned at a first height  $h_{36}$ , as seen from the bottom panel 15 of the outer box 10, the first height  $h_{36}$  being below a height  $h_{10}$  of an upper edge 10ue of the side walls 11-14 of the outer box 10 (as shown in figure 6). Thereby will the bottom surface 45' of the lid 40 be positioned inside the outer box 10. Thereby will the lid 40 be kept securely in position relative to the outer box 10. Moreover, if the lid 40 is provided with a cooling functionality, such as being packed with ice inside a box shaped lid or if the lid is formed as or contains an ice pack, the fact that the bottom surface 45' will be positioned inside the outer box 10 aids in keeping the cold from the lid 40 inside the insulated container 1.

The outer box 10 has a first outer circumference 10oc1 at an upper edge 10ue of the side walls 11-14 and a second outer circumference 10oc2 at the bottom panel 15.

When the outer box 10 is formed of the blank 10a, the second outer circumference 10oc2 is basically equal to the first outer circumference 10oc1. This will provide an outer box 10 with straight vertical side walls 11-14, which may be useful when it comes to space-efficiency when placing a plurality of insulated containers 1 side by side. It may also be useful to provide a strong insulated container 1 suitable for being stacked in a stack where a plurality of insulated containers 1 are positioned on top of each other.

When the outer box 10 is formed of the blank 10b, the first outer circumference 10oc1 is greater than the second outer circumference 10oc2. This latter is a convenient manner of providing internal space for internal handles 18a, 18b within the outer circumference 10oc of the outer box 10

while still securing that the sleeve 20 is kept at the intended position by abutting the side walls 11-14 of the box 10 close to the bottom panel 15. Moreover, the internal space thus formed also acts as an insulator in that it holds a volume of air standing still inside this volume.

5           The outer box blank 10a; 10b; 10b is preferably provided with top wall panels 16a-d being connected to the side walls 11-14 and being configured to be folded relative to the side walls 11-14 and form an upwardly facing, inwardly extending upper rim surface 16' around the open top 16 of the outer box 10. This upper rim surface 16' is in one use scenario used as supporting  
10 surface allowing other boxes to be stacked on top of this box. The inner edges 16ie of the rim 16 is preferably used to position the lid 40 in the intended position along the horizontal plane. When the outer box 10 is formed from the outer box blank 10a, the inner edges 16ie of the rim 16 are also used to position the insulating sleeve or box 20 in the intended position along the  
15 horizontal plane, thereby providing space for the handles by the outer box 10 being larger in length along the first and third side walls 11, 13 compared to the length of the insulating sleeve or box 20 along its first and third side walls 21, 23. There will thereby on either side 22, 24 of the insulating sleeve or box 20 be a space on between the end walls 22, 24 of the insulating sleeve or box  
20 20 and the end walls 12, 14 of the outer box 10.

It may be noted that in a specific insulated container 1, may one or more of the blanks 10a, 20a, 30a, 40a according to the respective first embodiment disclosed in figures 8-11 be replaced by the corresponding blank 10b, 20b, 30b, 40b according to the respective second embodiment disclosed  
25 in figures 12-15. It should also be noted that the blanks 10a; 10b, 20a; 20b, 30a; 30b, 40a; 40b are preferred embodiments but that the blanks may be designed in any other way as long they may be folded or erected into a box 10, a sleeve 20, a tray 30 or a lid 40 having the relevant properties of respective component 10, 20, 30, 40.

30           As shown in figures 5-7, the insulated container 1 is intended to be used according to the following; the tray 30 is positioned inside the sleeve 20 as shown in figure 5. The sleeve 20 and tray is positioned in the outer box 10

as shown in figure 6. Alternatively, the sleeve 20 is first placed in the outer box 10 and thereafter is the tray 30 inserted into the sleeve 20.

It may be noted from figure 5, that the sleeve 20 has a height H20 being greater than the height H30, h36 of the tray 30. This height difference is  
5 accommodated and hidden behind the downwardly directed panels 17a-d at the inner edges 16ei of the rim 16 of the outer box 10. In the embodiment shown in the drawings, the lid 40 is partly received into the outer box 10 and extends partly a distance above the upper edge 10ue of the box 10 (as shown in figure 7).

10 It is contemplated that there are numerous modifications of the embodiments described herein, which are still within the scope of the invention as defined by the appended claims.

The outer box blank 10a, 10b, the sleeve blank 20a, 20b, and/or the lid blank 40a, 40b may for instance also be provided with a moisture barrier,  
15 preferably a polymer based moisture barrier, on one of both major surfaces. Also such moisture barriers are preferably waterproof and leak-tight.

The tray blank 30a, 30b may be provided with a moisture barrier, preferably a polymer based moisture barrier, also on the other major surface. Also this moisture barrier is preferably waterproof and leak-tight.

20

CLAIMS

1. Insulated container (1) to be used for transporting hot or cold items, the insulated container (1) comprising:

5 an outer box (10) of a paper based box blank (10a; 10b) folded into a box (10) having a bottom panel (15), side walls (11-14) extending upwardly (H) from the bottom panel (15), and an open top (16),

an insulating sleeve or box (20) with an open top, the sleeve or box (20) being positioned inside the outer box (10) and being formed of a paper  
10 based sleeve blank (20a; 20b) folded into a sleeve or box (20) having side walls (21-24),

a tray (30) being positioned inside the insulating sleeve or box (20), the tray (30) being formed of a paper based tray blank (30a; 30b),

which is folded into a tray (30) having a bottom panel (35) and  
15 side walls (31-34) extending upwardly (H) from the bottom panel (35),

which is provided with a plurality of corner panel portions (CPA, CPB, CPC, CPD) each interconnecting two panels forming adjacent side walls (31-34), and

which has a moisture barrier (37) on a major surface (30a1;  
20 30b1) forming an inside surface (30i) of the insulated container (1),  
and

a lid (40) having a bottom surface (45') and a top surface (46'),

characterized in that the lid (40) is formed of a paper based lid blank (40a; 40b) being folded into a box (40) having a bottom panel (45) forming  
25 said bottom surface (45'), a top panel (46) forming said top surface (46'), and a plurality of side walls (41-44), the side walls interconnecting the bottom panel (45) to the top panel (46) with a distance (h40) provided between the bottom panel (45) and the top panel (46),

wherein the lid (40) has an outer circumferential extension (C40o) and  
30 the outer box (10) has an inner circumferential extension (C10i), wherein shapes and dimensions of the outer circumferential extension (C40o) of the lid (40) and the inner circumferential extension (C10i) of the outer box (10) are chosen such that the lid (40) is at least partly receivable into the outer box

(10) with the bottom surface (45') of the lid (40) facing the bottom panel (35) of the tray (30),

wherein the tray (30) has an upwardly facing abutment portion (36a-d) configured to be abutted by the bottom surface (45') of the lid (40), and

5 wherein the abutment portion (36a-d) of the tray (30) is positioned at a first height (h36), as seen from the bottom panel (15) of the outer box (10), the first height (h36) being below a height (h10) of an upper edge (10ue) of the side walls (11-14) of the outer box (10).

10 2. Insulated container according to claim 1, wherein the sleeve blank (20a; 20b) comprises four major panels (21a-24a) interconnected and arranged one after the other along a main direction (MD), wherein the major panels (21a-24a) are configured to be folded relative to each other and be positioned inside the outer box (10) such that each major panel (21a-24a)  
15 extend along an associated side wall (11-14) of the outer box (10) and with the main direction (MD) extending circumferentially (C) along an inside (10i) of the outer box (10).

20 3. Insulated container according to claim 2, wherein the sleeve blank (20) is further provided with at least four additional panels (21b-24b, 21c-24c), wherein each major panel (21a-24a) is associated with at least one additional panel (21b-24b, 21c-24c) being positioned, as seen along the major direction (MD), alongside respective major panel (21-24), wherein the additional panels (21b-24b, 21c-24c) are configured to be folded relative to each other (21b-  
25 24b, 21c-24c) and relative to the major panels (21a-24a) such that the sleeve (20) when inserted inside the outer box (10) is at least double walled along each side wall (11-14) of the outer box (10).

30 4. Insulated container according to any one of claims 1-3, wherein the insulating sleeve (20) is made of corrugated paper board.

5. Insulated container according to any one of claims 1-4, wherein the moisture barrier (37) on the tray blank (30a; 30b) is polymer based.

6. Insulated container according to any one of claims 1-5, wherein the outer box (10) has a first outer circumference (10oc1) at an upper edge (10ue) of the side walls (11-14) and a second outer circumference (10oc2) at the bottom panel (15), wherein the first outer circumference (10oc1) is greater than the second outer circumference (10oc2).

7. Insulated container according to any one of claims 1-6, wherein the outer box blank (10a; 10b) is provided with top wall panels (16a-d) being connected to the side walls (11-14) and being configured to be folded relative to the side walls (11-14) and form an upwardly facing, inwardly extending upper rim surface (16') around the open top (16) of the outer box (10).

I följande bilaga finns en översättning av patentkraven till svenska. Observera att det är patentkravens lydelse på engelska som gäller.

A Swedish translation of the patent claims is enclosed. Please note that only the English claims have legal effect.

PATENTKRAV

1. Isolerad behållare (1) avsedd att användas för transport av varma eller kalla produkter, varvid den isolerade behållaren (1) innefattar:
- 5           en ytterlåda (10) av ett pappersbaserat lådämne (10a; 10b) som är vikt till en låda (10) med en bottenpanel (15), sidoväggar (11-14) som sträcker sig uppåt (H) från bottenpanelen (15) och en öppen översida (16),
- ett isolerande hylsa eller låda (20) med en öppen översida, varvid hylsan eller lådan (20) är placerad inuti ytterlådan (10) och är formad av ett
- 10          pappersbaserat hylsämne (20a; 20b) som är vikt till en hylsa eller låda (20) med sidoväggar (21-24),
- ett tråg (30) som är placerat inuti den isolerande hylsan eller lådan (20), varvid tråget (30) är format av ett pappersbaserat trågåmne (30a; 30b),
- som är vikt till ett tråg (30) med en bottenpanel (35) och
- 15          sidoväggar (31-34) som sträcker sig uppåt (H) från bottenpanelen (35), som är försett med ett flertal hörnpanelpartier (CPA, CPB, CPC, CPD) som vart och ett sammanbinder två paneler som bildar angränsande sidoväggar (31-34) och
- som har en fuktbarriär (37) på en huvudyta (30a1; 30b1) som
- 20          bildar en insida (30i) hos den isolerade behållaren (1),
- samt
- ett lock (40) med en undersida (45') och en översida (46'),
- kännetecknad av att locket (40) är format av ett pappersbaserat lockämne (40a; 40b) som är vikt till en låda (40) med en bottenpanel (45) som
- 25          bildar nämnda undersida (45'), en topppanel (46) som bildar nämnda översida (46') och ett flertal sidoväggar (41-44), varvid sidoväggarna sammanbinder bottenpanelen (45) med topppanelen (46) med ett avstånd (h40) mellan bottenpanelen (45) och topppanelen (46),
- varvid locket (40) har ett ytteromfång (C40o) och ytterlådan (10) har ett
- 30          inneromfång (C10i), varvid formerna och dimensionerna hos ytteromfånget hos locket (40) och inneromfånget (C10i) hos ytterlådan (10) är valda så att locket (40) åtminstone delvis kan tas emot inuti ytterlådan (10) med undersidan (45') hos locket (40) vänd mot bottenpanelen (35) hos tråget (30),

varvid tråget (30) har ett uppåtvänt anliggningsparti (36a-d) som är konfigurerat för att ligga an mot undersidan (45') hos locket (40), samt

varvid anliggningspartiet (36a-d) hos tråget (30) är placerat på en första höjd (h36), sett från bottenpanelen (15) hos ytterlådan (10), varvid den första höjden (h36) är lägre än en höjd (h10) för en överkant (10ue) hos sidoväggarna (11-14) hos ytterlådan (10).

2. Isolerad behållare enligt patentkrav 1, varvid hylsämnet (20a; 20b) innefattar fyra huvudpaneler (21a-24a) som är sammanbundna och anordnade den ena efter den andra längs en huvudriktning (MD), varvid huvudpanelerna (21a-24a) är konfigurerade för att vikas i förhållande till varandra och placeras inuti ytterlådan (10) så att varje huvudpanel (21a-24a) sträcker sig längs en motsvarande sidovägg (11-14) hos ytterlådan (10) och med huvudriktningen (MD) sträckande sig i omfångsriktningen (C) längs en insida (10i) hos ytterlådan (10).

3. Isolerad behållare enligt patentkrav 2, varvid hylsämnet (20) dessutom är försett med åtminstone fyra ytterligare paneler (21b-24b, 21c-24c), varvid varje huvudpanel (21a-24a) är förbunden med åtminstone en ytterligare panel (21b-24b, 21c-24c) som, sett längs huvudriktningen (MD), är placerad vid sidan av respektive huvudpanel (21-24), varvid de ytterligare panelerna (21b-24b, 21c-24c) är konfigurerade för att vikas i förhållande till varandra (21b-24b, 21c-24c) och i förhållande till huvudpanelerna (21a-24a) så att hylsan (20) när insatt i ytterlådan (10) är åtminstone dubbelväggig längs varje sidovägg (11-14) hos ytterlådan (10).

4. Isolerad behållare enligt något av patentkraven 1-3, varvid den isolerande hylsan (20) är tillverkad av wellpapp.

5. Isolerad behållare enligt något av patentkraven 1-4, varvid fuktbarriären (37) på trågämnet (30a; 30b) är polymerbaserad.

6. Isolerad behållare enligt något av patentkraven 1-5, varvid ytterlådan (10) har en första yttre omkrets (10oc1) vid en överkant (10ue) hos sidoväggarna (11-14) och en andra yttre omkrets (10oc2) vid bottenpanelen (15), varvid den första yttre omkretsen (10oc1) är större än den andra yttre omkretsen (10oc2).

7. Isolerad behållare enligt något av patentkraven 1-6, varvid ytterlådämnet (10a; 10b) är försett med toppväggpaneler (16a-d) som är förbundna med sidoväggarna (11-14) och är som är konfigurerade för att vikas i förhållande till sidoväggarna (11-14) och bilda en uppåtvänd övre kantyta (16') som sträcker sig inåt runt den öppna översidan (16) hos ytterlådan (10).



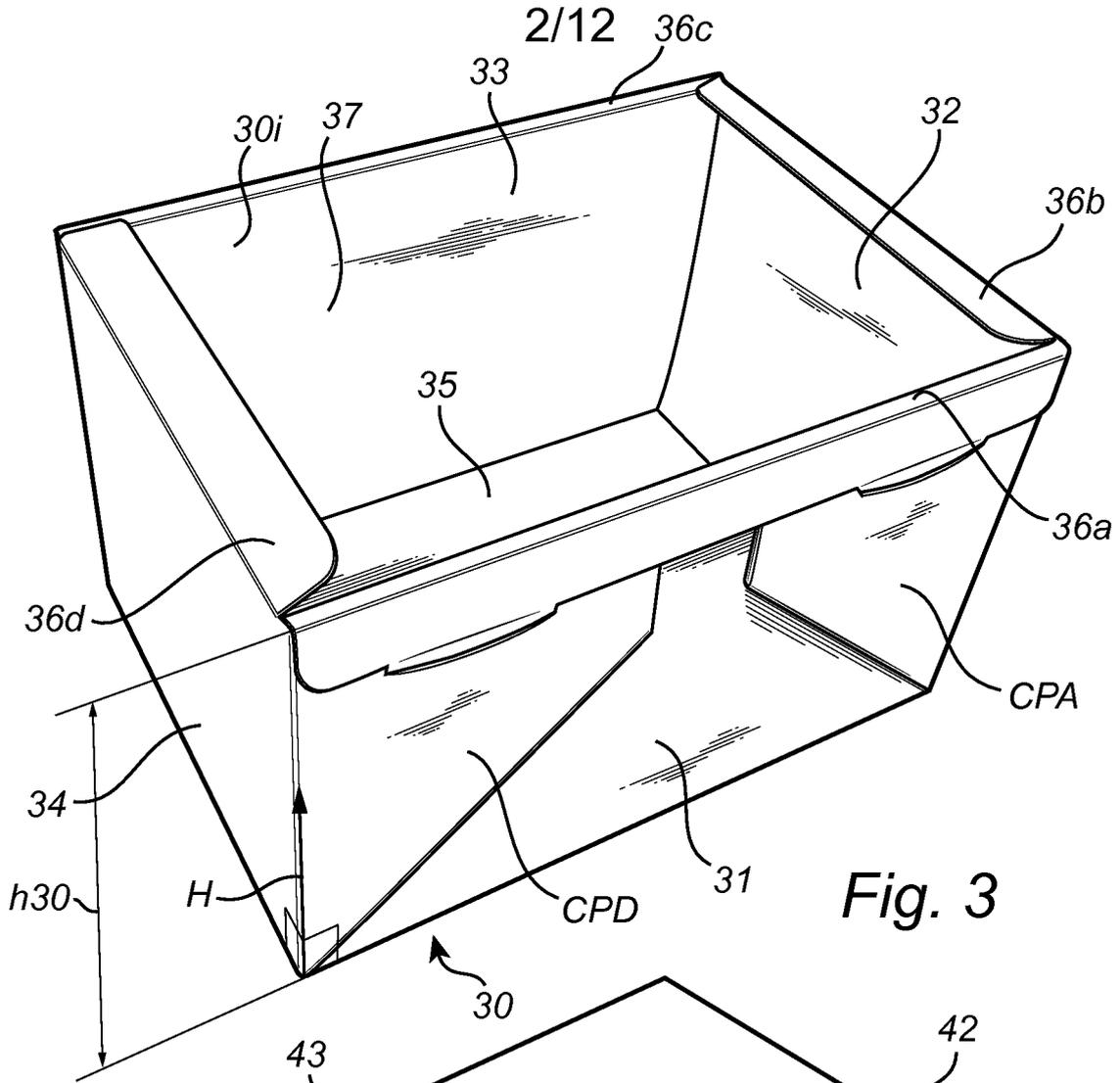


Fig. 3

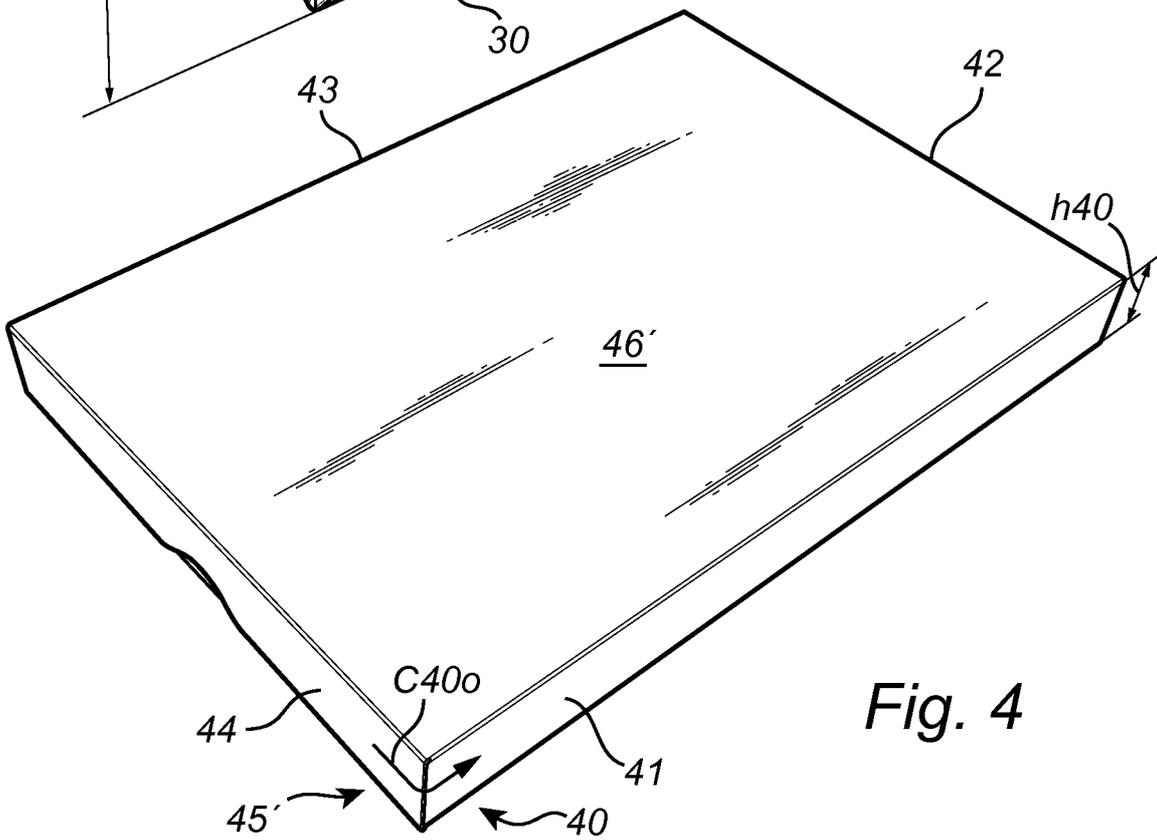


Fig. 4

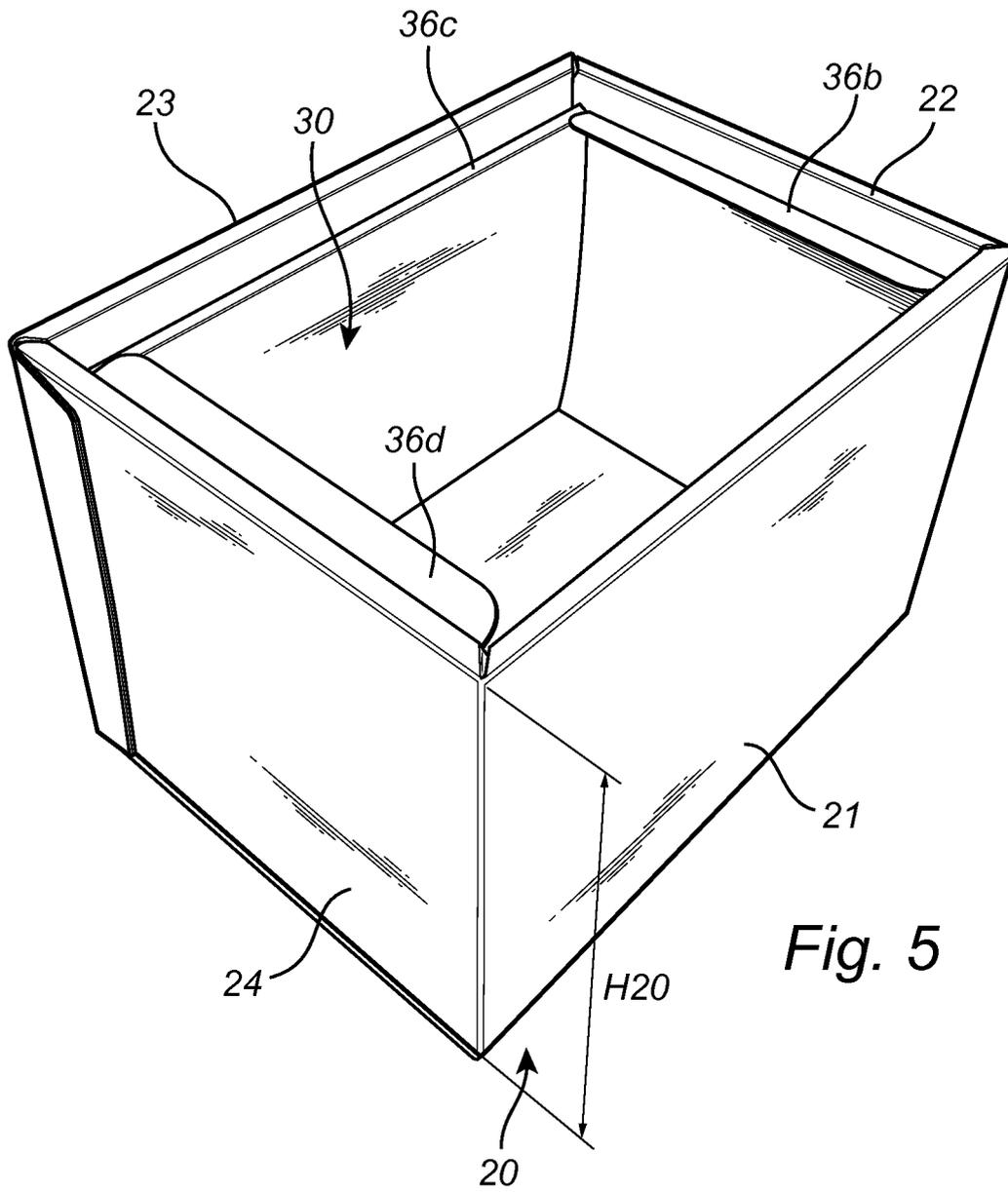


Fig. 5

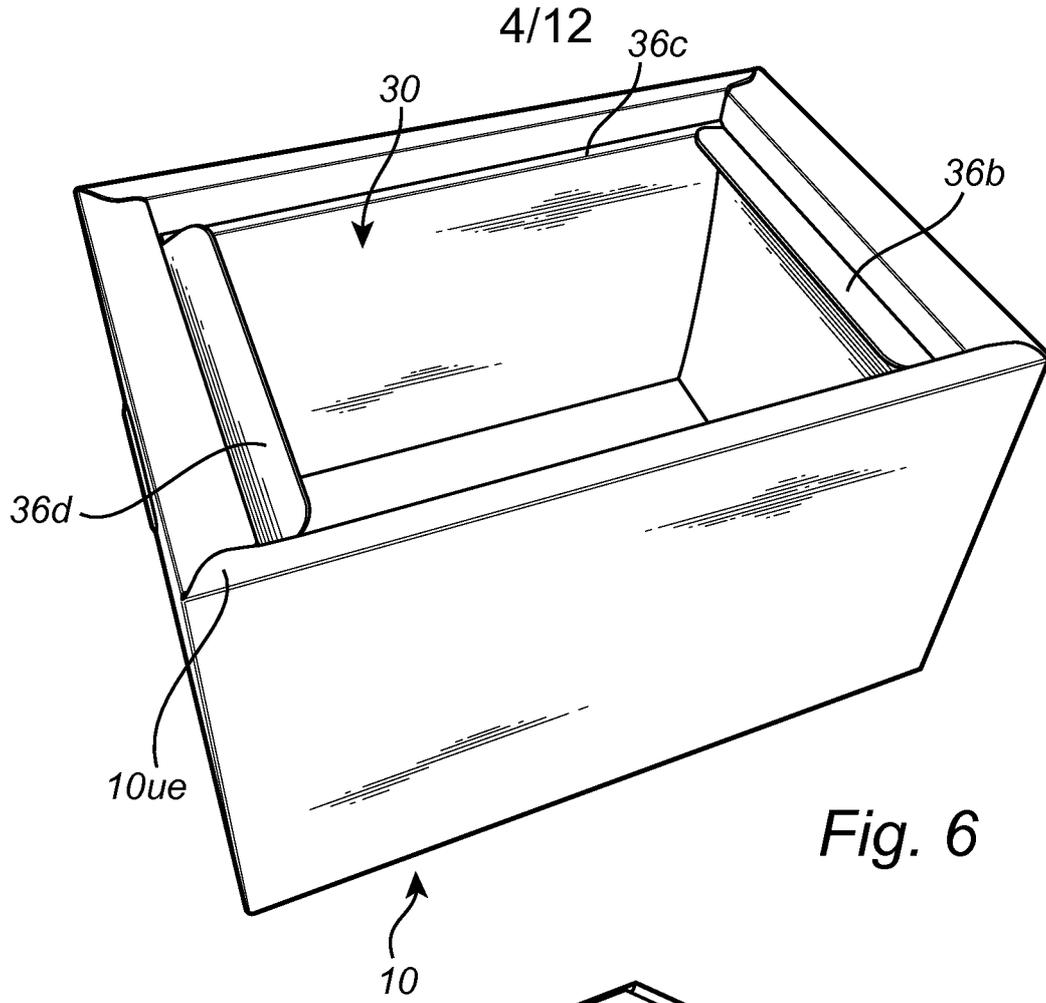


Fig. 6

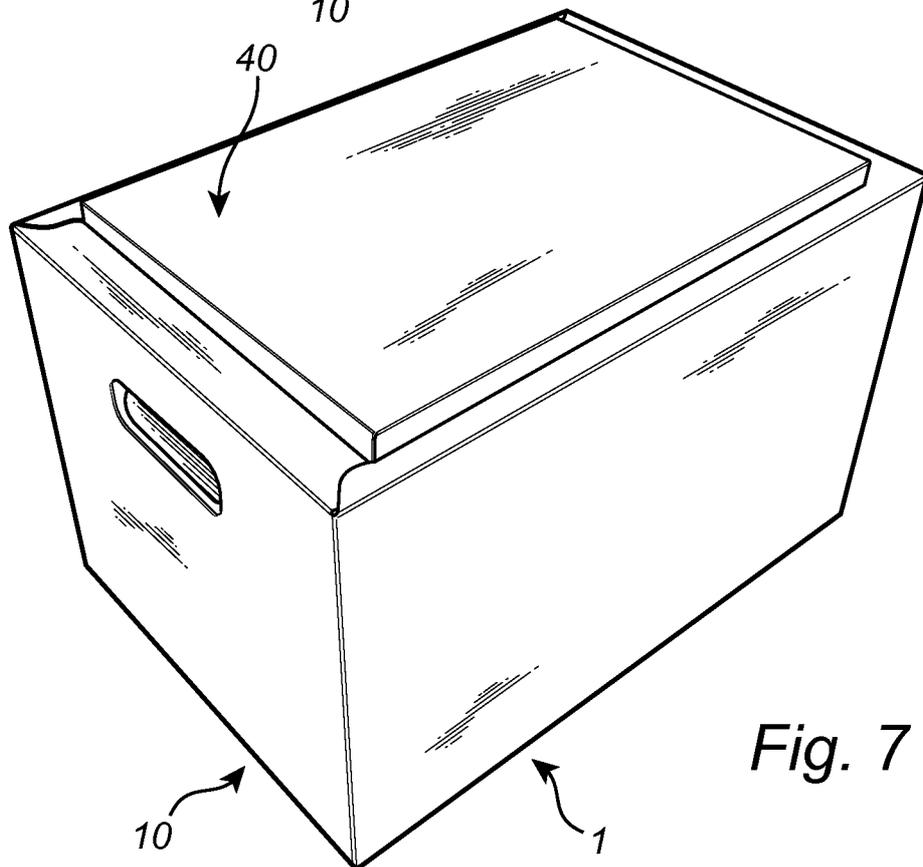


Fig. 7





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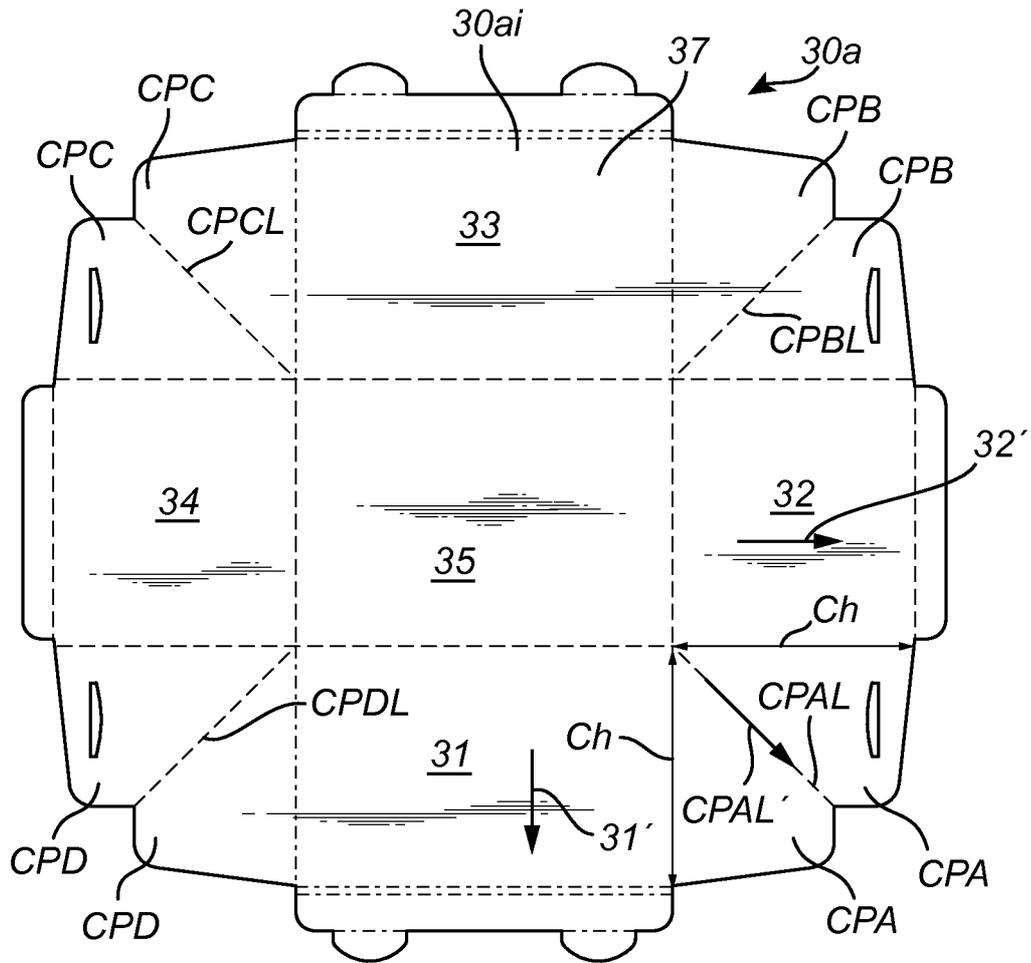
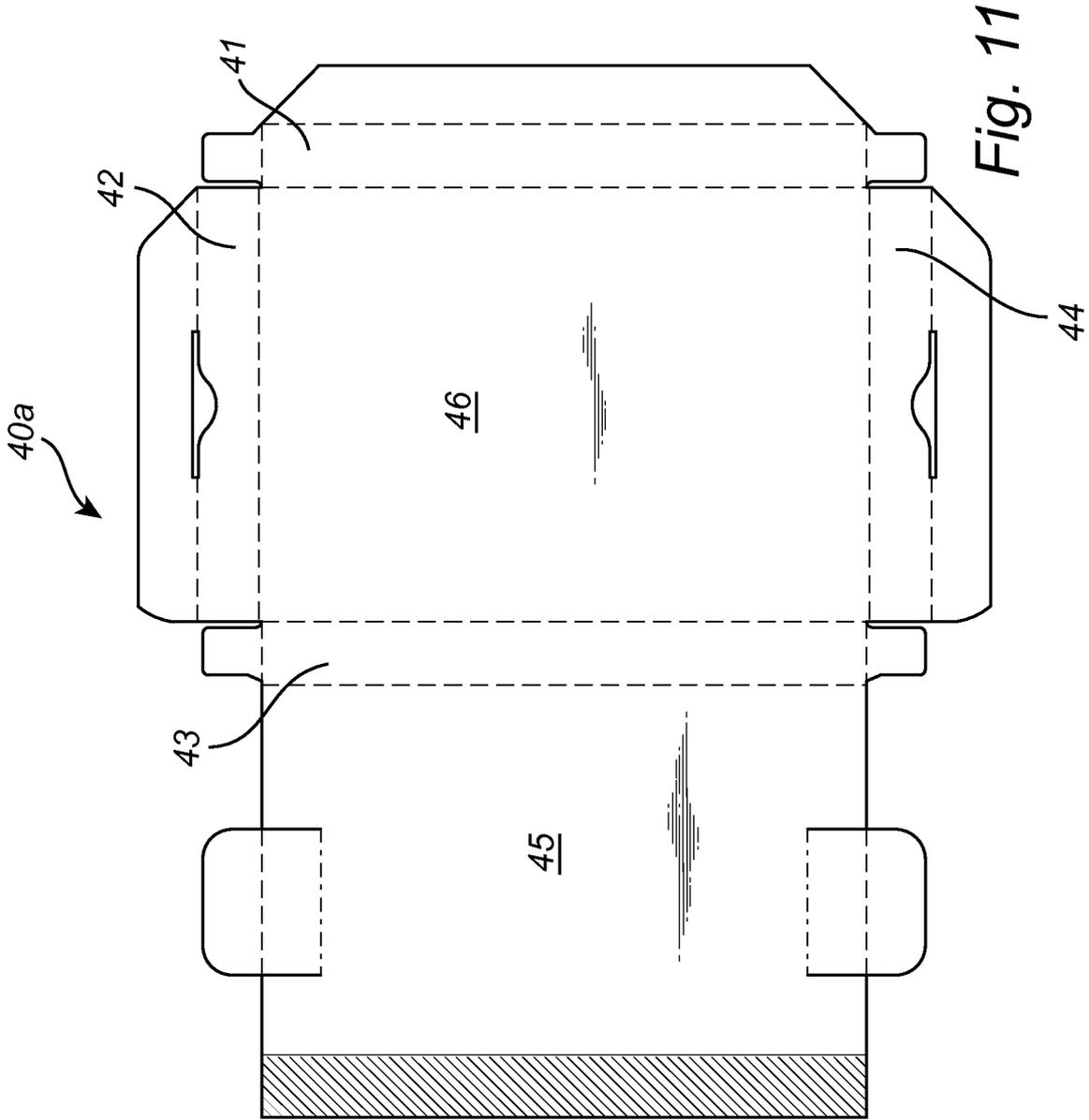
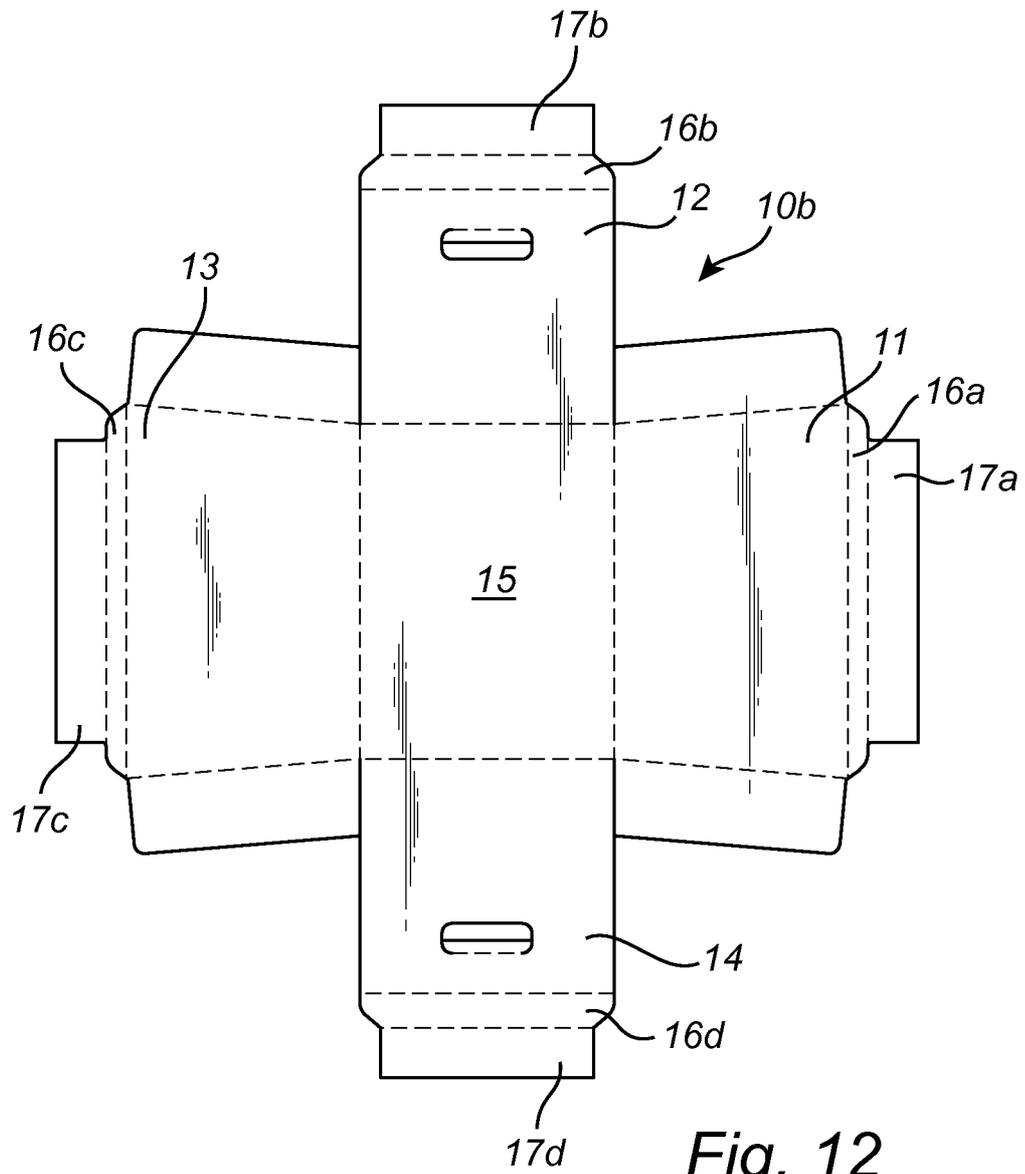


Fig. 10





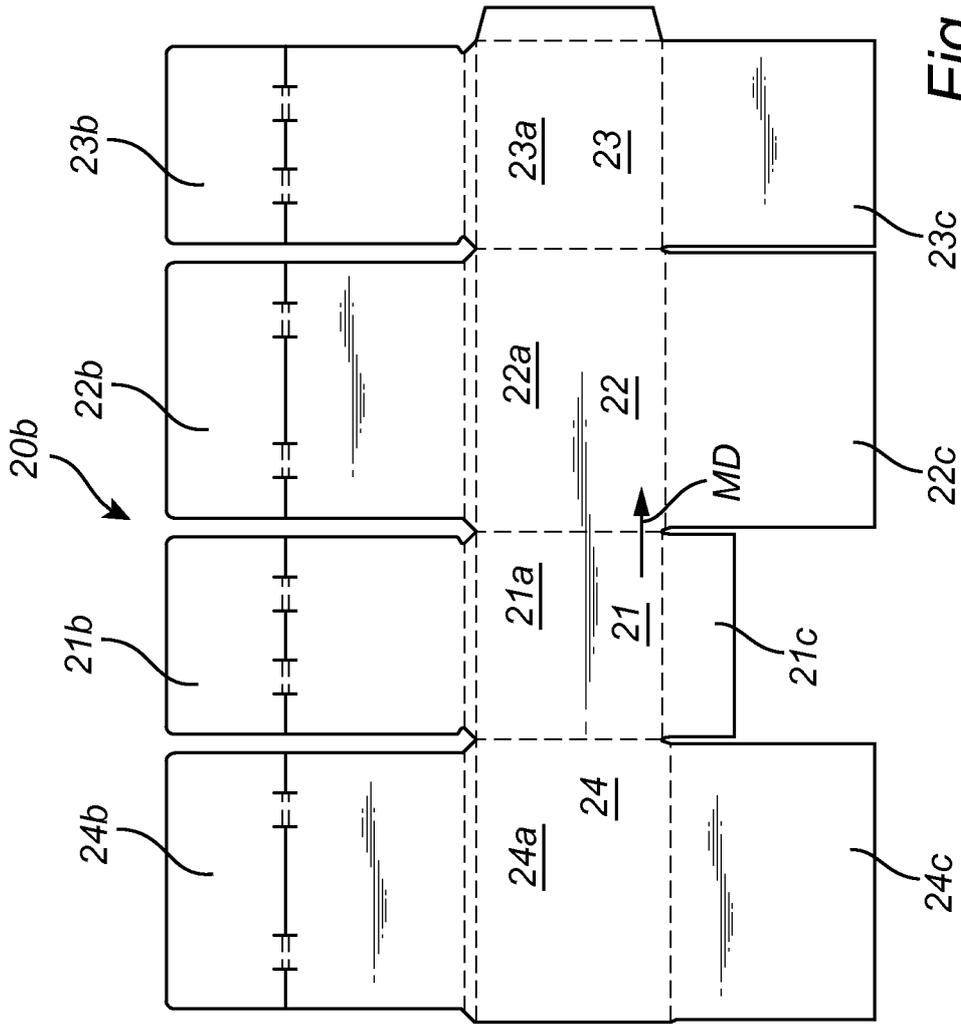


Fig. 13

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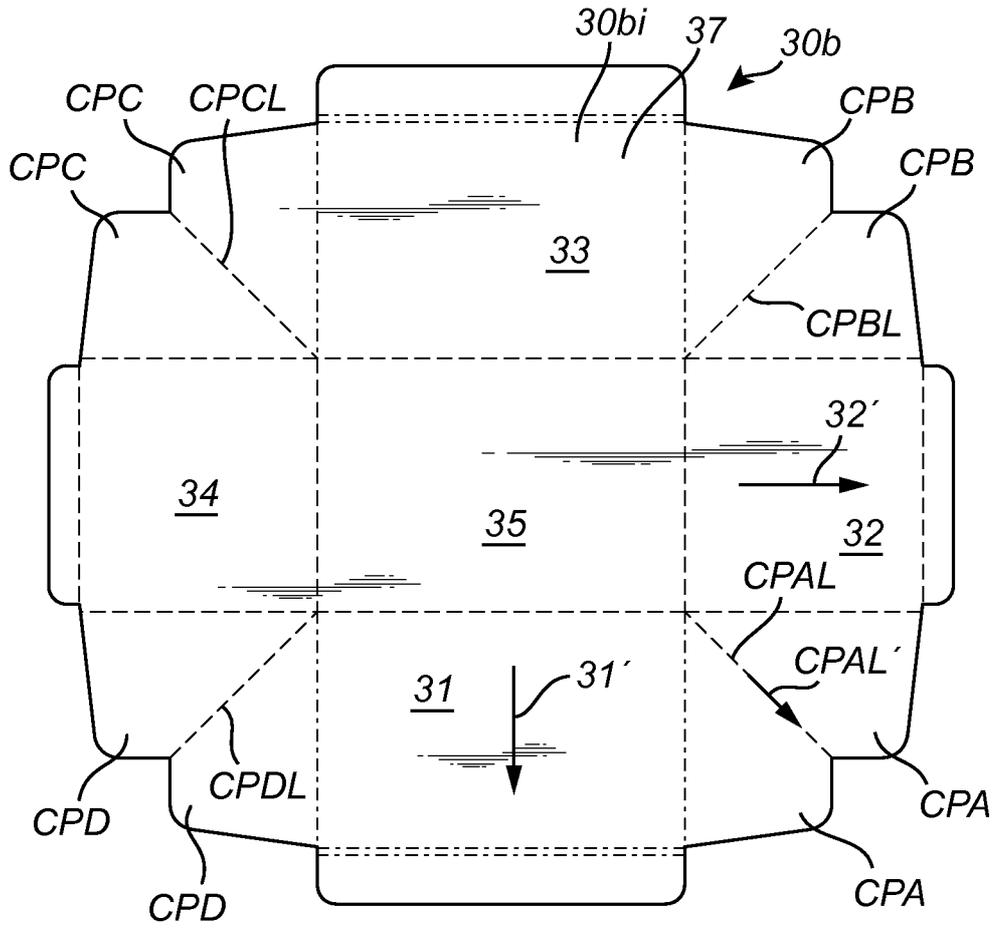


Fig. 14

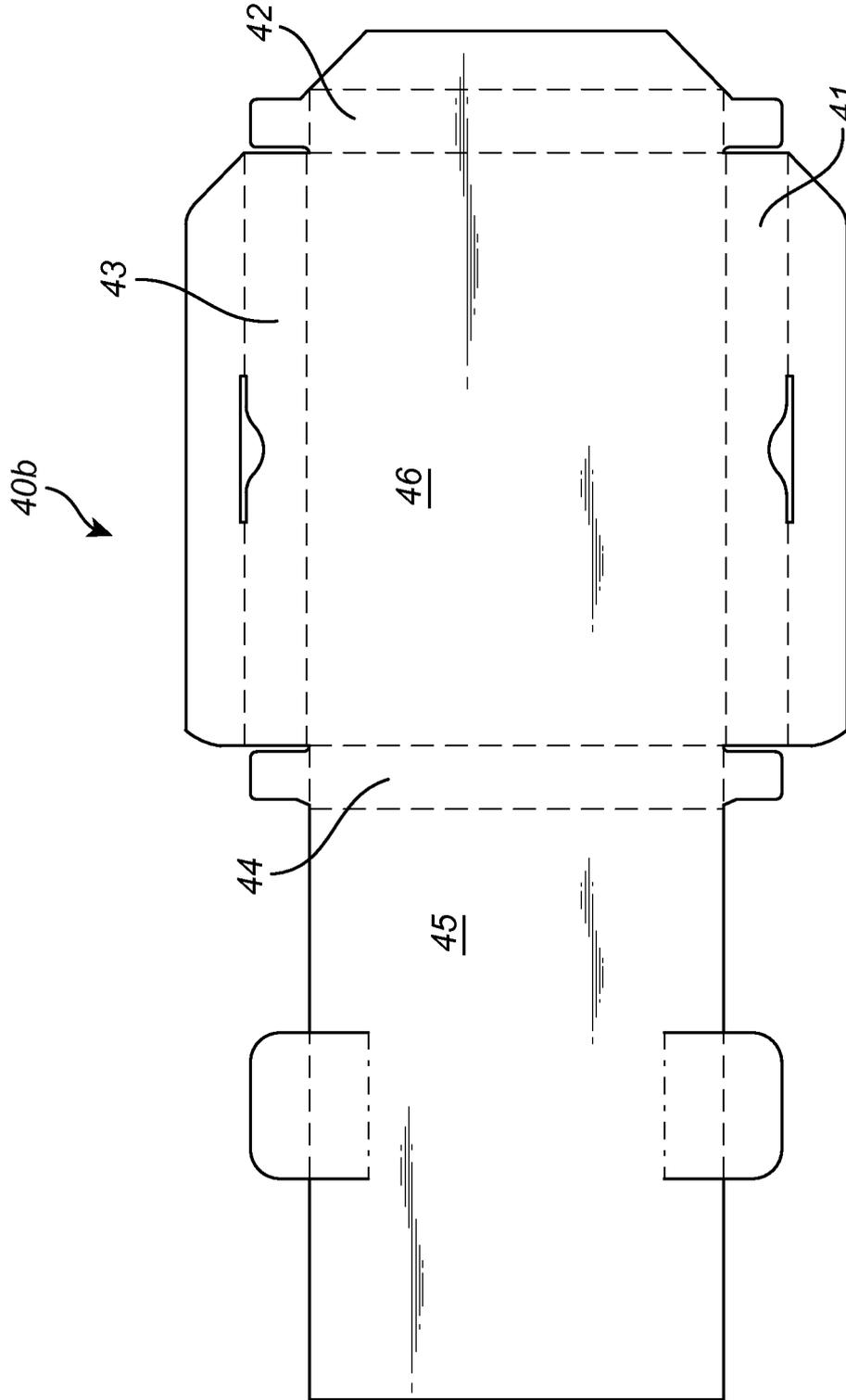


Fig. 15