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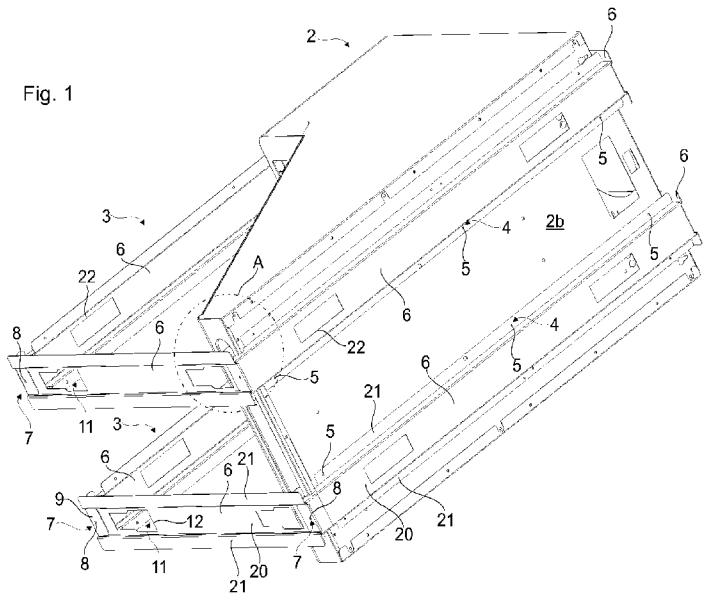
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(54) Title: PROTECTIVE PACKAGING ASSEMBLY FOR A HOUSEHOLD APPLIANCE

Fig. 1




(57) Abstract: The present invention relates to a protective packaging assembly (1) for use with a household appliance (2), in particular an extractor hood (2).

WO 2018/202289 A1

Description

# PROTECTIVE PACKAGING ASSEMBLY FOR A HOUSEHOLD APPLIANCE

[0001] The present invention relates to a protective packaging assembly for packaging a household appliance, in particular an extractor hood.

[0002] In general, cargoes such as household appliances must withstand comparatively high mechanical stresses that are generated during the various stages of the transportation until they are delivered to the customers. These mechanical stresses are, for instance, generated by the transportation devices in the warehouses, in particular through the forklifts having the clamping jaws. These mechanical stresses are practically unavoidable. In order to mitigate the adverse effects of the impacts, the household appliance is generally packaged with a protective packaging assembly for cushioning the same from the inevitable knocks. Protective packaging assemblies are commonly known in the art. During an ordinary impact, the protective packaging assembly partly absorbs the energy of the impact and usually recovers its initial shape.

[0003] WO2010/060808A1 discloses a prior art cardboard box for a refrigerator.

[0004] A problem with the prior art protective packaging assembly is that the clamping jaws of the fork lift can from time to time damage the household appliance. Such accidents may happen, for instance, when the clamping force exerted by the clamping jaws is excessively high or unbalanced. Another problem with the prior art protective packaging assembly is that the household appliance is damaged from time to time when they fall down. Such accidents may happen, for instance, when the clamping force exerted by the clamping jaws is too weak. Another problem with the prior art protective packaging assembly is that the household appliances are damaged from time to time when too many of them are stacked on top of each other. In such incidents, the household appliances either require repair through the service or must be recycled. It is of utmost importance that the household appliance is properly protected by the protective packaging assembly in order to ensure that it can be delivered to the customer in the undamaged state.

[0005] An objective of the present invention is to provide a protective packaging

assembly for a household appliance which solves the aforementioned problems of the prior art in a cost-effective way and which enables an improved reliability and safety.

[0006] This objective has been achieved by the protective packaging assembly as defined in claim 1. Further achievements have been attained by the subject-matters respectively defined in the dependent claims.

[0007] The protective packaging assembly of the present invention comprises: one or more rigid frames each adapted to protectively surround the front side, the rear side, the bottom side, and the top side of the household appliance; and one or more first attachment means for separately and detachably attaching the frames directly to the rear side of the household appliance respectively.

[0008] A major advantageous effect of the present invention is that the household appliance can be more effectively protected against the damages by virtue of the rigid frames in the above mentioned inappropriate circumstances including excessive clamping forces or excessive stacking heights, or when they fall down for some reason, and thus the risk of delivering the household appliance to the customer in the damaged stage can be eliminated or reduced as much as possible. Thereby, the overall costs can be further reduced. Thereby, the customer satisfaction can be increased. Another major advantageous effect of the present invention is that the frames can be easily attached to or detached from the rear side of the household appliance as the rear side has generally no decorative features but ample mounting area for the first attachment means such as first screw connections or the like. Another major advantageous effect of the present invention is that the frames can be easily attached to or detached from the rear side of the household appliance as the rear side can be easily accessed unlike the bottom side when the household appliance such as a washer or the like is in the upright position.

[0009] In an embodiment, the frame is directly attached to the rear side of the household appliance through one or more screws. This embodiment is particularly advantageous as the frames can be cost effectively and securely attached to the household appliance.

[0010] In an embodiment, the adjacent ends of four supports are detachably attached to each other so as to form one frame. Herein each support extends across the respective side of the household appliance. This embodiment is particularly advantageous as the supports of the frame can be easily assembled and disassembled.

[0011] In an embodiment, the adjacent ends of the supports are detachably attached to each other through one or more screws. This embodiment is also particularly advantageous as the supports can be cost effectively and securely attached to each other.

[0012] In an embodiment, the adjacent ends of the supports have seating tabs which form-fittingly engage with each other. This embodiment is also particularly advantageous as the supports can be quickly and securely attached to each other.

[0013] In an embodiment, one or more cushions are attached to the frames for cushioning the household appliance. This embodiment is particularly advantageous as the cushions contact the respective sides of the household appliance and absorbs the energy of the impact.

[0014] In an embodiment, the cushions are fitted into the cutouts in the supports of the frames. This embodiment is particularly advantageous as the cushions can be easily assembled and securely held in place.

[0015] In an embodiment, the household appliance and the surrounding frames is enclosed in a lower half box and an upper half box each made of foam material. This embodiment is particularly advantageous as the foam material can absorb the energy of the impacts.

[0016] In an embodiment, the supports of the frames have alignment apertures that receive the alignment protrusions formed into the lower/upper half boxes. This embodiment is particularly advantageous as the household appliance can be correctly centered into the lower/upper half boxes.

[0017] In an embodiment, the lower/upper half boxes are sandwiched between a lower pallet and an upper pallet. The lower/upper pallets are received into the alignments grooves in the lower/upper half boxes. This embodiment is particularly advantageous as the lower/upper pallets give the protective packaging assembly additional mechanical strength against the clamping

jaws.

[0018] In an embodiment, four vertical supports are respectively arranged along the four vertical corners of the lower half box and the upper half box and between the lower pallet and the upper pallet. This embodiment is particularly advantageous as the four vertical supports give the packaging assembly additional mechanical strength against excessive stacking heights.

[0019] In an embodiment, a cardboard box is sleeved onto the four vertical supports, the lower pallet, the upper pallet, the lower half box, the upper half box, and the frame when assembled with the household appliance. This embodiment is particularly advantageous as the cardboard box gives the protective packaging assembly more integrity, and also provides additional protection against the intrusion of dust and the like.

[0020] In an embodiment, the frame, in particular each support is made from a sheet metal. This embodiment is particularly advantageous as the household appliance can be effectively protected against the clamping jaws of the forklift.

[0021] In an embodiment, the supports of the frame are u-shaped and have seating flanges. This embodiment is particularly advantageous as the mechanical strength of the frame has been increased. This embodiment is also particularly advantageous as the frame can be properly seated onto the respective sides of the household appliance.

[0022] Additional features and additional advantageous effects of the protective packaging assembly of the present invention will become more apparent with the detailed description of an embodiment with reference to the accompanying drawings in which:

[0023] Figure 1 – is a schematic perspective view of a household appliance, in particular of an extractor hood which has been surrounded by two frames of the protective packaging assembly according to an embodiment of the present invention;

[0024] Figure 2 – is a schematic enlarged view of the detail A of Fig. 1;

[0025] Figure 3 – is a schematic perspective view of the extractor hood which has been surrounded by two frames and put into the lower half box and placed

on the lower pallet of the protective packaging assembly according to an embodiment of the present invention;

[0026] Figure 4 – is a schematic perspective view of the extractor hood which has been packaged with the protective packaging assembly according to an embodiment of the present invention, wherein the upper half box and, and the cardboard box have been omitted for illustrative purposes;

[0027] Figure 5 – is a schematic perspective exploded view of the protective packaging assembly for the extractor hood according to an embodiment of the present invention.

[0028] The reference signs appearing on the drawings relate to the following technical features.

1. Protective packaging assembly
2. Household appliance (extractor hood)

[0029] 2a. Front side

[0030] 2b. Rear side

[0031] 2c. Bottom side

[0032] 2d. Top side

[0033] 3. Frame

[0034] 4. First attachment means

[0035] 5. First screw connection

[0036] 6. Support

[0037] 7. Second attachment means

[0038] 8. Second screw connection

[0039] 9. Seating tab

[0040] 10. Cushion

[0041] 11. Third attachment means

[0042] 12. Cutout

[0043] 13. Lower half box

[0044] 14. Upper half box

[0045] 15. Lower pallet

[0046] 16. Upper pallet

[0047] 17. Alignment groove

[0048] 18. Vertical support

[0049] 19. Cardboard box

[0050] 20. Body

[0051] 21. Seating flange

[0052] 22. Alignment aperture

[0053] 23. Flap

[0054] 24. Handle

[0055] 25. Pad

[0056] The protective packaging assembly **(1)** is suitable for use with the household appliance **(2)**, in particular the extractor hood **(2)** (Fig. 5).

[0057] The protective packaging assembly **(1)** of the present invention comprises: one or more rigid frames **(3)** each adapted to protectively surround the front side **(2a)**, the rear side **(2b)**, the bottom side **(2c)**, and the top side **(2d)** of the household appliance **(2)**; and one or more first attachment means **(4)** each for separately and detachably attaching the frames **(3)** directly to the rear side **(2b)** of the household appliance **(2)** respectively (Fig. 1 and Fig. 5).

[0058] In an embodiment, the first attachment means **(4)** comprises one or more first screw connections **(5)** for attaching the respective frame **(3)** directly to the rear side **(2b)** of the household appliance **(2)** (Fig. 1). In an embodiment, each frame **(3)** is directly attached to the rear side **(2b)** of the household appliance **(2)** through six screws (not shown).

[0059] In an embodiment, each frame **(3)** comprises: four supports **(6)** which are adapted to respectively extend across the front side **(2a)**, the rear side **(2b)** , the bottom side **(2c)**, and the top side **(2d)** of the household appliance **(2)** ; and a second attachment means **(7)** for detachably attaching the adjacent ends of the supports **(6)** to each other so as to form the frame **(3)** (Fig. 1). In this embodiment, the opposite supports **(6)** are identical. In this embodiment, the supports **(6)** are straight one-piece elements (Fig. 1 and Fig. 5).

[0060] In an embodiment, the second attachment means **(7)** comprises one or more second screw connections **(8)** for detachably attaching the adjacent ends of the supports **(6)** to each other so as to form the frame **(3)** (Fig. 1 and Fig. 5). In an embodiment, the adjacent ends of the two supports **(6)**

are attached through one screw (not shown).

[0061] In an embodiment, the second attachment means **(7)** comprises seating tabs **(9)** respectively formed onto the ends of the supports **(6)**. In this embodiment, the seating tabs **(9)** of the adjacent ends of the supports **(6)** are adapted to form-fittingly engage with each other (Fig. 1 and Fig. 5).

[0062] In an embodiment, the protective packaging assembly **(1)** further comprises: one or more cushions **(10)** each for cushioning one of the front side **(2a)**, the rear side **(2b)**, the bottom side **(2c)** or the top side **(2d)** of the household appliance **(2)** against the frames **(3)**; and one or more third attachment means **(11)** for attaching the cushions **(10)** to the frames **(3)** respectively (Fig. 5). In an embodiment, two cushions **(10)** are attached to each support **(6)** of the frame **(3)** which is disposed onto the top surface **(2d)** of the extractor hood **(2)**. In an embodiment, the cushions **(10)** comprise silicone rubber material.

[0063] In an embodiment, the third attachment means **(11)** comprises a cutout **(12)**. In this embodiment, the cushion **(10)** is adapted to fit into the cutout **(12)** and to contact the household appliance **(2)** (Fig. 5). In an embodiment, the cutouts **(12)** are formed into the support **(6)**.

[0064] In an embodiment, the protective packaging assembly **(1)** further comprises: a lower half box **(13)** and an upper half box **(14)** which are adapted to enclose together the household appliance **(2)** and the surrounding frames **(3)** (Fig. 3 and Fig. 5). In this embodiment, the lower half box **(13)** and the upper half box **(14)** are both made of foam material. In an embodiment, the lower half box **(13)** and the upper half box **(14)** are identical.

[0065] In an embodiment, the lower half box **(13)** and the upper half box **(14)** each has one or more alignment protrusions (not shown) in their inner surfaces for aligning the frame **(3)**, in particular the supports **(6)**. In an embodiment, the alignment protrusions fit into the alignment apertures **(22)** in the supports **(6)** respectively (Fig. 1).

[0066] In an embodiment, the protective packaging assembly **(1)** further comprises: a lower pallet **(15)** and an upper pallet **(16)** which are adapted to be disposed onto the underside of the lower half box **(13)** and onto the

top of the upper half box **(14)** respectively (Fig. 4 and Fig. 5). In this embodiment, the lower half box **(13)** and the upper half box **(14)** each has alignment grooves **(17)** for receiving the lower pallet **(15)** and the upper pallet **(16)** respectively (Fig. 5). In an embodiment, the upper/lower pallets (15,16) become level with the surfaces of the upper/lower half boxes (13,14) when they are embedded into the alignment grooves **(17)** (Fig. 4). In an embodiment, the lower pallet **(15)** and the upper pallet **(16)** are identical. In an embodiment, the lower pallet **(15)** and the upper pallet **(16)** are made of wooden material.

[0067] In an embodiment, the protective packaging assembly **(1)** further comprises: four vertical supports **(18)** which are adapted to be respectively arranged along the four vertical corners of the lower half box **(13)** and the upper half box **(14)** and between the lower pallet **(15)** and an upper pallet **(16)** (Fig. 4 and Fig. 5). In this embodiment, the four vertical supports **(18)** have an L-shaped cross sections and are straight.

[0068] In an embodiment, the protective packaging assembly **(1)** further comprises: a cardboard box **(19)** for enclosing the four vertical supports **(18)**, the lower pallet **(15)**, the upper pallet **(16)**, the lower half box **(13)**, the upper half box **(14)**, and the frame **(3)** in the assembled state (Fig. 5). In an embodiment, the cardboard box **(19)** has flaps **(23)** and a handle **(24)** (Fig. 5).

[0069] In an embodiment, the frame **(3)**, in particular the supports **(6)** are made from sheet metals. In an embodiment, the four vertical supports **(18)** are also made from sheet metals.

[0070] In an embodiment, the frame **(3)** comprises a body **(20)** which is u-shaped and has seating flanges **(21)** on its lateral sides (Fig. 5). In an embodiment, the first screw connections **(5)** are formed into the seating flanges **(21)** (Fig. 1).

[0071] In an embodiment, a pad **(25)** which is made from foam material is arranged between the frames **(3)** and the front surface **(2a)** (Fig. 5).

[0072] A major advantageous effect of the present invention is that the household appliance **(2)** can be more effectively protected against the damages by virtue of the rigid frames **(3)** in the above mentioned inappropriate

circumstances including excessive clamping forces or excessive stacking heights, or when they fall down for some reason, and thus the risk of delivering the household appliance (2) to the customer in the damaged stage can be eliminated or reduced as much as possible. Thereby, the overall costs can be further reduced. Thereby, the customer satisfaction can be increased. Another major advantageous effect of the present invention is that the frames (3) can be easily attached to or detached from the rear side (2b) of the household appliance (2) as the rear side (2b) has generally no decorative features but ample mounting area for the first attachment means (4) such as the first screw connections (5) or the like. Another major advantageous effect of the present invention is that the frames (3) can be easily attached to or detached from the rear side (2b) of the household appliance (2) as the rear side (2b) can be easily accessed unlike the bottom side (2c) when the household appliance (2) such as a washer or the like is in the upright position. Other advantageous effects of the present invention can be taken from the above described embodiments.

## Claims

1. A protective packaging assembly (1) for use with a household appliance (2), in particular an extractor hood (2), the protective packaging assembly (1) being characterized by comprising: one or more rigid frames (3) each adapted to protectively surround the front side (2a), the rear side (2b), the bottom side (2c) , and the top side (2d) of the household appliance (2); and one or more first attachment means (4) each for separately and detachably attaching the frames (3) directly to the rear side (2b) of the household appliance (2) respectively.
2. The protective packaging assembly (1) according to claim 1, characterized in that the first attachment means (4) comprises one or more first screw connections (5) for attaching the respective frame (3) directly to the rear side (2b) of the household appliance (2).
3. The protective packaging assembly (1) according to claim 1 or 2, characterized in that each frame (3) comprises four supports (6) which are adapted to respectively extend across the front side (2a), the rear side (2b), the bottom side (2c), the top side (2d) of the household appliance (2); and a second attachment means (7) for detachably attaching the adjacent ends of the supports (6) to each other so as to form the frame (3).
4. The protective packaging assembly (1) according to claim 3, characterized in that the second attachment means (7) comprises one or more second screw connections (8) for detachably attaching the adjacent ends of the supports (6) to each other so as to form the frame (3).
5. The protective packaging assembly (1) according to claim 3 or 4, characterized in that the second attachment means (7) comprises seating tabs (9) respectively formed onto the ends of the supports (6), wherein the seating tabs (9) of the adjacent ends of the supports (6) are adapted to form-fittingly engage with each other.
6. The protective packaging assembly (1) according to any one of claims 1 to 5, characterized by further comprising: one or more cushions (10) each for cushioning one of the front side (2a), the rear side (2b), the bottom side (2c), or the top side (2d) of the household appliance (2) against the frames (3); and one or more third attachment means (11) for attaching the cushions (10) to the frame (3) respectively.

7. The protective packaging assembly (1) according to claim 6, characterized in that the third attachment means (11) comprises a cutout (12), wherein the cushion (10) is adapted to fit into the cutout (12) and to contact the household appliance (2).
8. The protective packaging assembly (1) according to any one of claims 1 to 7, characterized by further comprising: a lower half box (13) and an upper half box (14) which are adapted to enclose together the household appliance (2) and the surrounding frames (3), wherein the lower half box (13) and the upper half box (14) are both made of foam material.
9. The protective packaging assembly (1) according to claim 8, characterized in that the lower half box (13) and the upper half box (14) each has one or more alignment protrusions in their inner surfaces for aligning the frame (3).
10. The protective packaging assembly (1) according to claim 8 or 9, characterized by further comprising: a lower pallet (15) and an upper pallet (16) which are adapted to be disposed onto the underside of the lower half box (13) and onto the top of the upper half box (14) respectively, wherein the lower half box (13) and the upper half box (14) each has alignment grooves (17) for receiving the lower pallet (15) and the upper pallet (16) respectively.
11. The protective packaging assembly (1) according to claim 10, characterized by further comprising: four vertical supports (18) which are adapted to be respectively arranged along the four vertical corners of the lower half box (13) and the upper half box (14) and between the lower pallet (15) and the upper pallet (16).
12. The protective packaging assembly (1) according to claim 11, characterized by further comprising: a cardboard box (19) for enclosing the four vertical supports (18), the lower pallet (15), the upper pallet (16), the lower half box (13), the upper half box (14), and the frame (3) in the assembled state.
13. The protective packaging assembly (1) according to any one of claims 1 to 12, characterized in that the frame (3) is made from one or more sheet metals.
14. The protective packaging assembly (1) according to any one of claims 1 to 13, characterized in that the frame (3) comprises a body (20) which is u-shaped and has seating flanges (21) on its lateral sides.
15. A household appliance (2), in particular an extractor hood (2) which is packed

with the protective packaging assembly **(1)** according to any one of claims 1 to 14.

Fig. 1

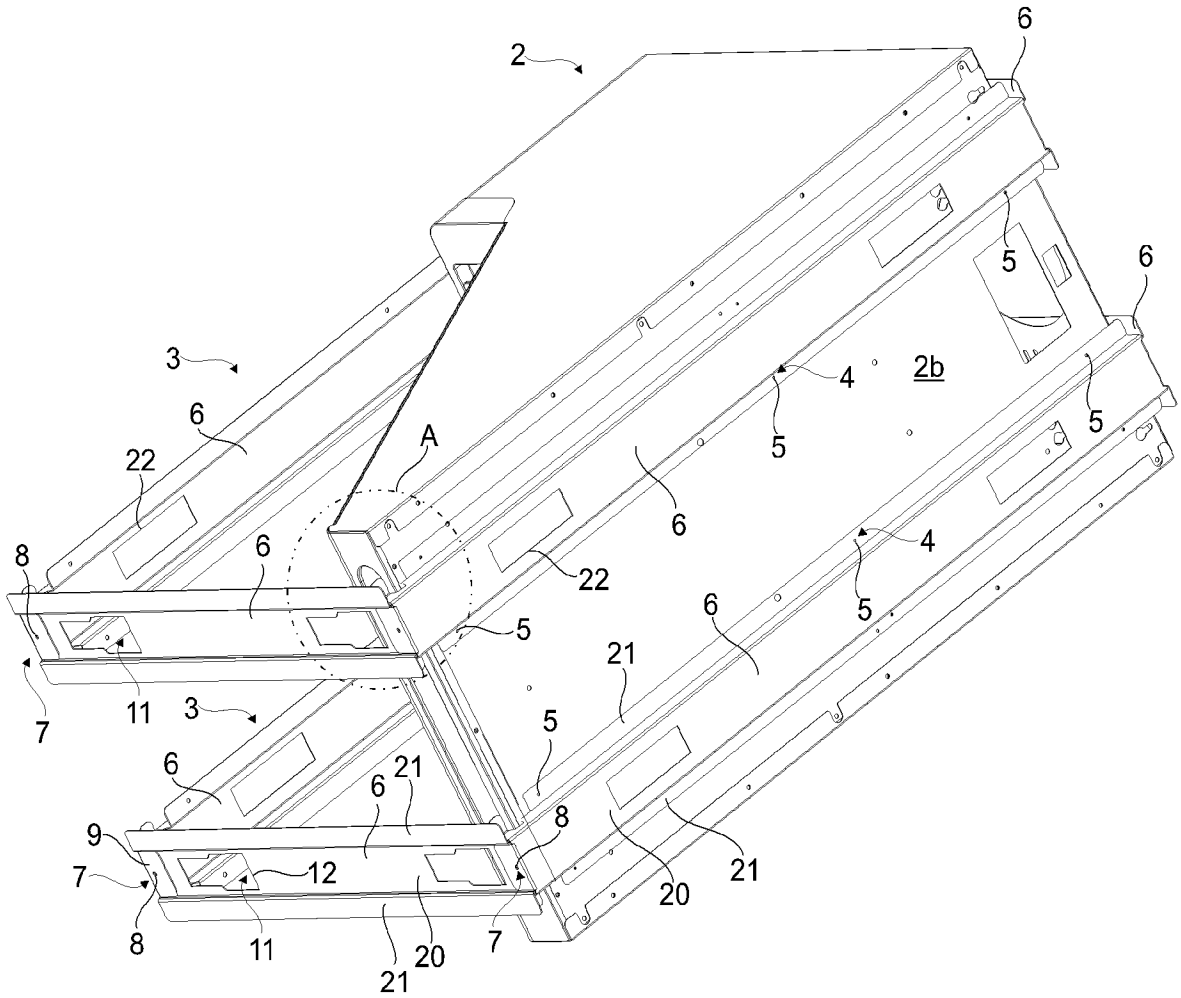

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Fig. 2

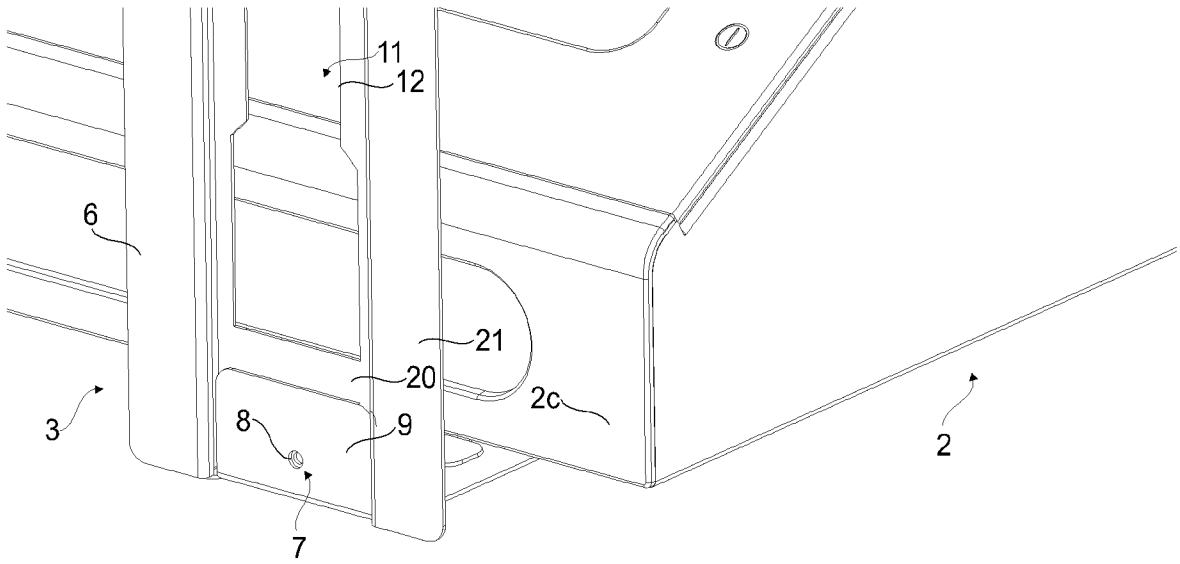


Fig. 3

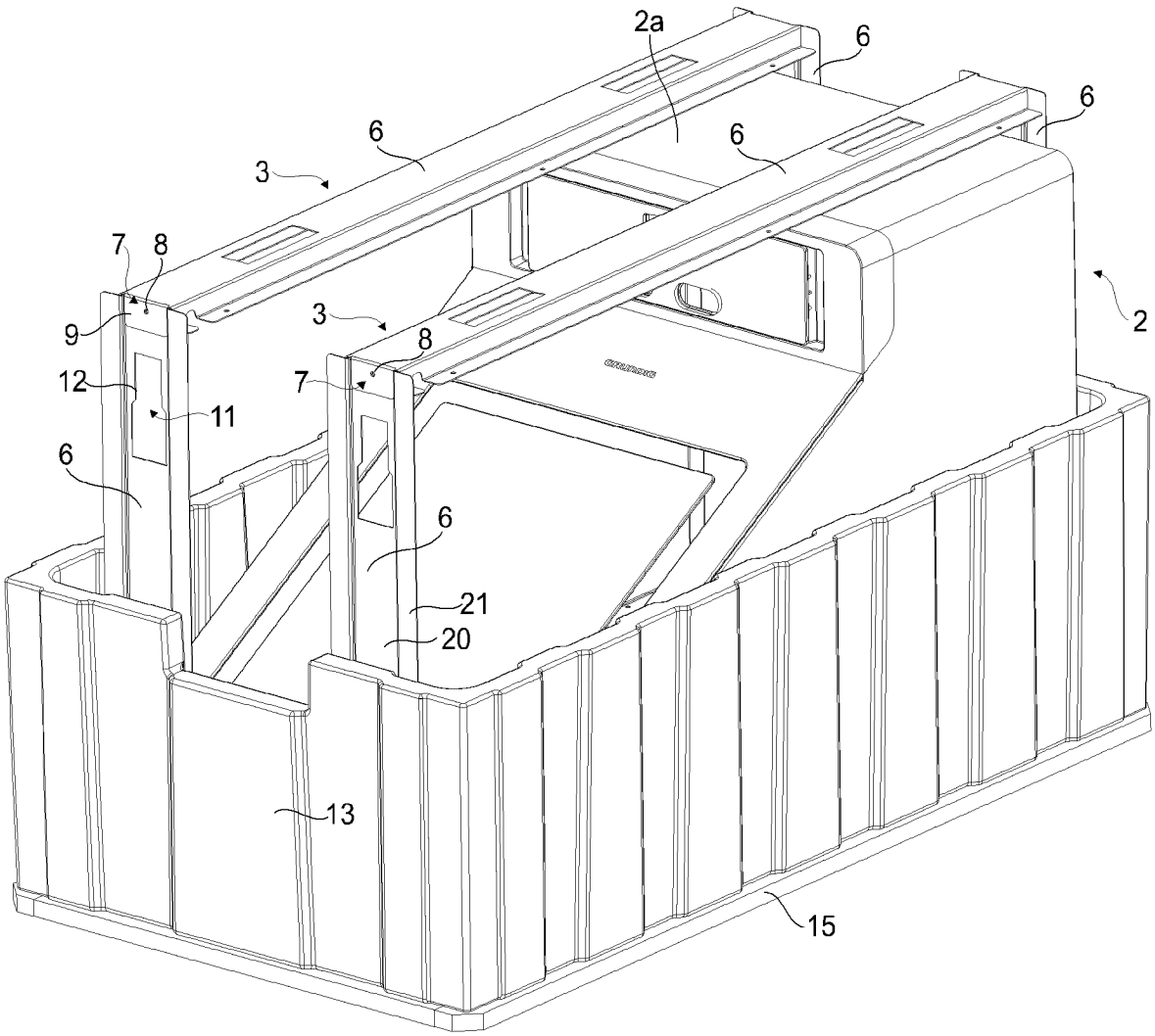


Fig. 4

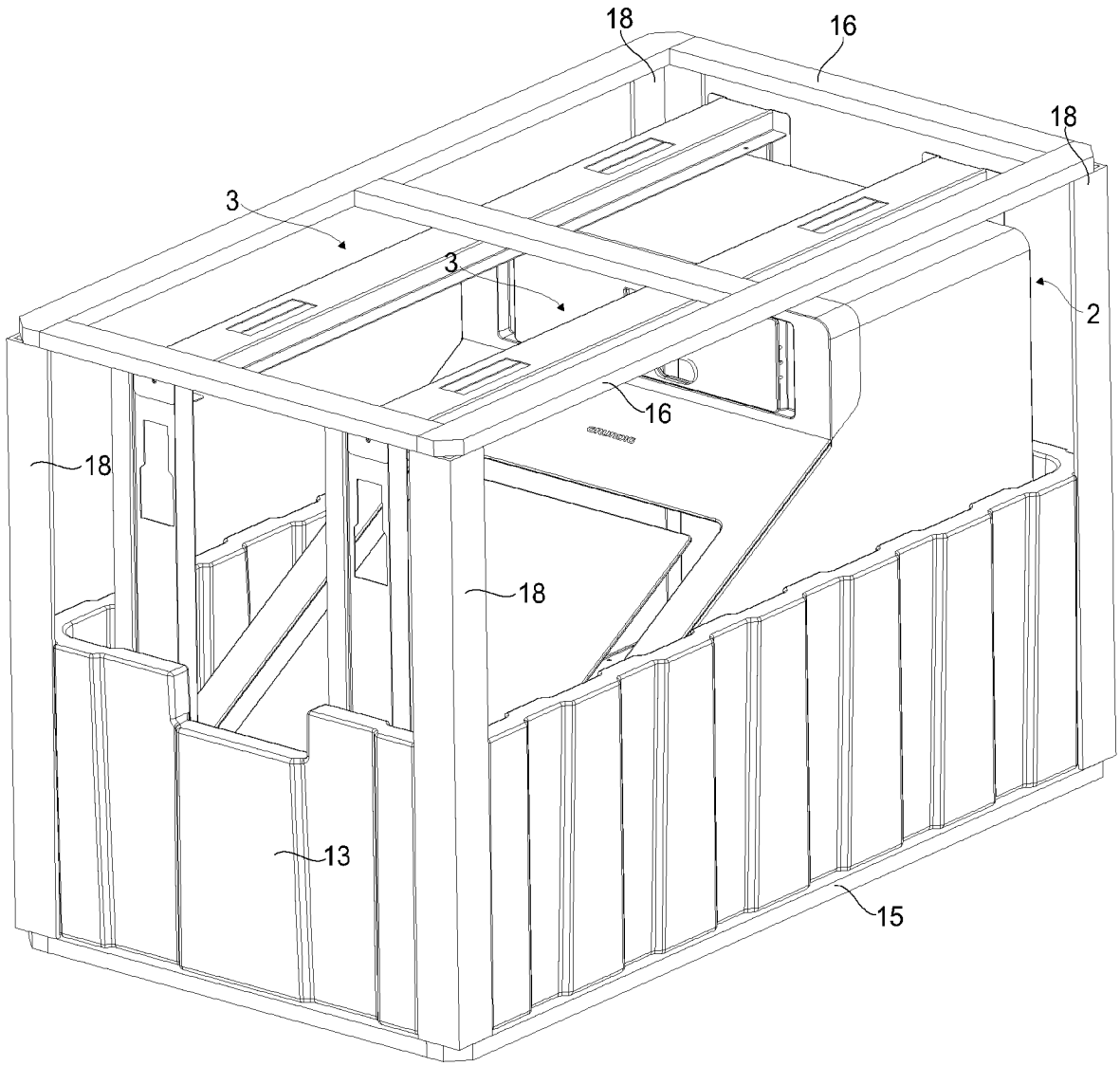
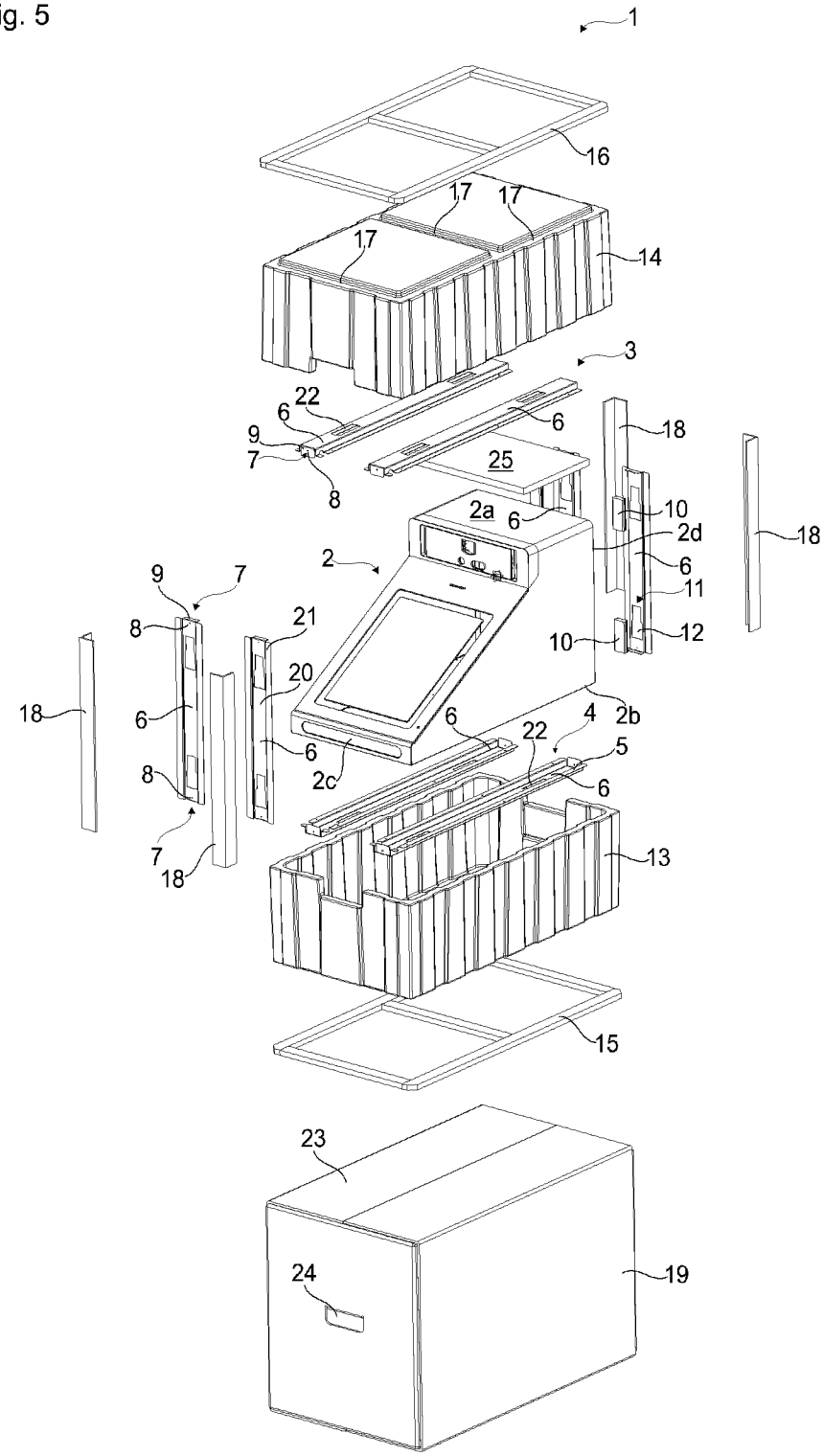


Fig. 5


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# INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2017/060515

A. CLASSIFICATION OF SUBJECT MATTER
INV. B65D81/02 B65D85/68
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
B65D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|---|---|---|
| X | US 2007/131147 A1 (BRUBAKER TOM [US] ET AL) 14 June 2007 (2007-06-14) | 1,3,15 |
| A | paragraph [0030]; figures 1-9 | 2,4-14 |
| X | DE 94 02 140 U1 (REHAU AG & CO [DE]) 31 March 1994 (1994-03-31) page 5, line 7 - line 11; figures 1-2 | 1,3,15 |

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

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1

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/EP2017/060515

| Patent document cited in search report | Publication date | Patent family member(s) | Publication date |
|---|---|---|---|
| US 2007131147 A1 | 14-06-2007 | NONE | |
| DE 9402140 U1 | 31-03-1994 | NONE | |