(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 3 929 096 A1**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
29.12.2021 Bulletin 2021/52

(51) Int Cl.:
B65D 5/20 *(2006.01)*

(21) Application number: **21174275.4**

(22) Date of filing: **18.05.2021**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME
Designated Validation States:
KH MA MD TN

(30) Priority: **26.06.2020 IT 202000015487**

(71) Applicant: **Rama S.r.l.**
22030 Orsenigo (Como) (IT)

(72) Inventor: **RAMACCIATO, MAURIZIO**
22036 Erba (CO) (IT)

(74) Representative: **Franco Martegani S.r.l.**
Via Carlo Alberto, 41
20900 Monza (IT)

(54) TRAY IN A SINGLE PIECE AND METHOD FOR ITS PRODUCTION

(57) A food tray produced from a blank or die-cut made of paper material or cardboard for food comprising: a main panel (51) with which a side panel (52) is foldably associated, wherein the main panel (51) consists of a rectangular frame which comprises two shorter sides (2,3) and two longer sides (1,6), wherein the two shorter sides (2,3) extend in a longitudinal direction (L) and the two longer sides (1,6) extend in a transverse direction (T); two panels having reduced dimensions (5,4), shaped in the form of isosceles trapezoids extend from the two shorter sides (2,3) in a transverse direction (T) towards a central internal opening or cutout (53) of the main panel (51), the side panel (52) extends from one (6) of the two long sides (1,6) of the main frame panel (51) by means of a strip (7), which acts as an attachment portion of the side panel (52); wherein the side panel (52) comprises a central internal panel (54) from which two transverse peripheral panels (8,13) and two longitudinal peripheral panels (10,18) shaped in the form of an isosceles trapezoid extend outwardly on the four sides, one (8) of the transverse peripheral panels being associated with the strip (7), which acts as an attachment portion of the side panel (52), and the other (13) of the transverse peripheral panels, opposite the previous panel, being associated with a panel having a rectangular flap (16), lines of glue (55,56,58,59,60,61) being further provided, which join overlapping panels or parts thereof.

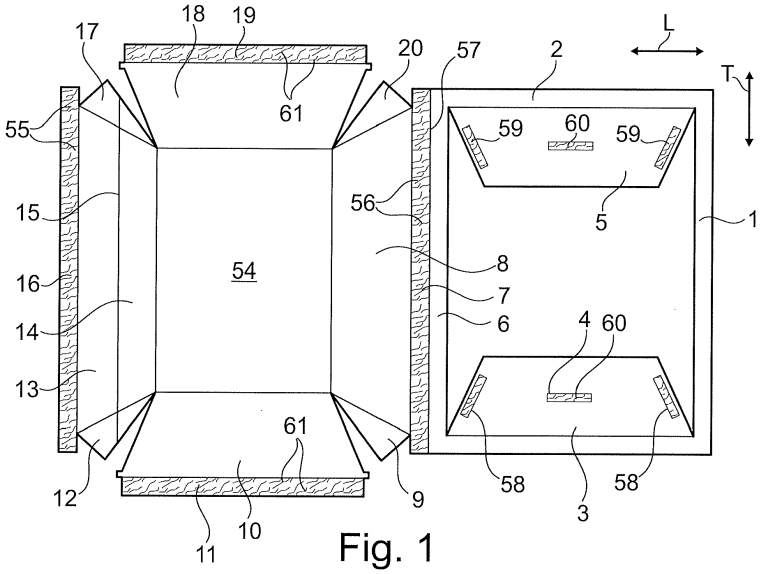

Fig. 1

EP 3 929 096 A1

Description

[0001] The present invention relates to a tray in a single piece and a method for producing it.

[0002] Food trays are known which are made of a material such as cardboard, paper, polymeric sheet and/or a laminate which comprises one or more layers.

[0003] These trays are generally composed of several parts connected to each other by additional elements glued or non-glued. These additional elements can for example be plastic laminated sheets or the like which are absolutely necessary, as otherwise the tray would not be able to sustain itself in an operational position for containing food or similar products.

[0004] A certain formation complexity is thus achieved, requiring particularly complex machinery in which devices for forming the parts from the initial blank must be combined with devices for feeding additional parts. An actual cover must be made, for example, in line with a laminate of the initial cardboard blank.

[0005] In the absence of this, the cardboard blank would not even be able to create an open tray in an operational position capable of standing upright.

[0006] JP 2006 290368 relates to a tray according to the preamble of claim 1. Furthermore, this document also relates to a method for producing the tray it describes.

[0007] The general objective of the present invention is to provide a blank and a method capable of solving the above-mentioned drawbacks of the prior art in an extremely simple, economical and particularly functional way.

[0008] A further objective of the present invention is to produce a particularly rapid tray to be assembled from a single blank without adding parts or additional elements, except for the intervention of a simple glue.

[0009] The above-mentioned objectives are achieved by a tray in a single piece and a method for producing it according to the independent claims and following subordinate claims.

[0010] The structural and functional characteristics of the present invention and its advantages with respect to the known art will become even more evident from the following description, referring to the attached schematic drawings, which show an embodiment example of the same invention. In the drawings:

- figure 1 shows a plan view of a flat extended blank used for forming a container or tray according to a first exemplary embodiment of the present invention;
- figures 2 to 6 show further plan and perspective views in which the blank in figure 1 has a series of first folds and gluing effected directly by the paper-converting company that punched it, so it can be arranged in a position for being inserted in an automatic forming machine;
- figures 7 to 12 show consecutive stages for forming the tray from the initial blank with the simple gluing and folding of some panels of which it is constituted;
- figures 13 to 24 show similar views and positions for a second embodiment of a blank useful for forming a tray according to the invention.

[0011] With reference to the figures, which are illustrative and non-limiting, these show embodiments of a blank which then creates a tray for food according to the present invention.

[0012] Indications such as "vertical" and "horizontal", "upper" and "lower" (in the absence of other indications) should be read with reference to the assembly (or operating) conditions and referring to the normal terminology used in current language, wherein "vertical" indicates a direction substantially parallel to that of the force of gravity vector "g" and a horizontal direction perpendicular to it.

[0013] Furthermore, indications such as "longitudinal" and "transverse" refer: the former to the main and adjacent side panels and the latter passing through and/or parallel to the folding line between the two panels.

[0014] As shown in figure 1, in a first embodiment for producing a food tray according to the present invention, a blank is used, punched or sheared, made of material suitable for containing a food product, indicated as a whole with 50 in its unfolded flat position. In the blank 50, a main panel 51 is defined in a longitudinal direction L with which a side panel 52 is foldably associated, thus indicated as a whole.

[0015] The main panel 51 consists of a rectangular frame which comprises two shorter sides 2 and 3 from which two small panels 5 and 4, shaped in the form of isosceles trapezoids, extend in a transverse direction T towards an internal central opening or cutout 53. The above-mentioned frame is continuous and closed, without interruptions. Two longer sides 1 and 6 of the main frame panel 51 are also indicated in the transverse direction T; more specifically, 1 indicates the free terminal side and 6 indicates that with which the side panel 52 is associated.

[0016] More specifically, a strip 7 having the same size is juxtaposed with respect to the side 6 of the main frame panel 51, which acts as an attachment portion of the adjacent side panel 52.

[0017] The side panel 52 comprises a central internal panel 54 from which peripheral panels 8, 10, 13 and 18, shaped in the form of an isosceles trapezoid and extending outwardly from the central internal panel 54, extend on the four sides.

[0018] More specifically, the peripheral panel 8 extends from the strip 7, which has been seen to act as an attachment portion of the side panel 52. Said peripheral panel 8, called transverse, is arranged transversely in the side panel 52. Said peripheral panel 8 provides at its opposite side ends, two triangular panels 20 and 9 facing the adjacent longitudinal peripheral panels 18 and 10 respectively. These longitudinal peripheral panels 18 and 10 in turn extend outwardly into a panel having a rectangular flap 19 and 11 which will be seen hereunder.

[0019] And again, a transverse peripheral panel 13,

opposite the transverse peripheral panel 8 with respect to the central internal panel 54 (also arranged transversely), also has at its opposite side ends, two triangular panels 17 and 12 facing the adjacent longitudinal peripheral panels 18 and 10, respectively. It should also be noted that this transverse peripheral panel 13 extends outwardly into a panel with a rectangular flap 16, also transverse.

[0020] It should also be specified that one 8 of said transverse peripheral panels is associated with said strip 7, which acts as an attachment portion of the side panel 52, and that one 13 of said transverse peripheral panels opposite the previous panel 8 is associated with a panel having a rectangular flap 16.

[0021] As will be seen hereunder, glue lines are naturally further provided, which join overlapping panels or parts thereof.

[0022] It should also be noted that the transverse peripheral panel 13 in one of its intermediate areas provides a folding invitation line 15 which thus defines a panel part thereof indicated with 14 close to the central internal panel 54.

[0023] And this detailed description of the blank 50 is shown in all of its details in figure 1 in the flat extended position.

[0024] The following figures show the steps or phases through which the blank is folded and shaped to form the final tray or container.

[0025] In particular, figure 2 shows how in the blank, from the flat extended position of figure 1, a first fold is made in its side panel 13 in an intermediate area using the folding invitation line 15. In this way, the part 14 of the side panel 13 remains stationary and the remaining part of the panel 13 is brought to overlap the part 14 and the central internal panel 54.

[0026] In this way, a second position of at least part of the side panel 13 is created.

[0027] Figure 3 shows how from this second position in figure 2 only the panel with a rectangular flap 16 is folded outwardly, which is thus brought to superimpose part of the side panel 13.

[0028] It should be noted that on this flap panel 16, there is a line of glue indicated with 55, facing upwards in figure 3 which will then be coupled with the free end side 1 of the main frame panel 51.

[0029] And in this respect, it should also be noted that the strip 7 of the side panel 52 is provided with a glue line indicated with 56 facing upwards in figure 3 which will then be coupled with the side 6 of the main frame panel 51.

[0030] Once this operation has been effected, the main panel 51 is rotated onto the side panel 52. This occurs thanks to a folding invitation line 57 defined between the side 6 of the main frame panel 51 and the strip 7 of the side panel 52, which, as already mentioned, acts as an attachment portion.

[0031] The glue lines 55 and 56 thus constrain the main panel 51 to the side panel 52 superimposed on each other as can be clearly seen in figure 4. In particular, this position between the parts is that which is reached by the blank 50 by effecting the above-mentioned foldings and the two gluings indicated. This situation is usually created by the paper industry that produces the blank and which then passes it, thus partially formed, to the user who uses it in the complete shaping machine of the tray to be obtained.

[0032] Figure 5 shows a section or a view from one end of the blank, when it has been glued as described above, in its various constituent portions, to form the arrangement of figure 4. Identically figure 6 shows, in a perspective view, how the various panels of the tray being formed appear after the first two gluings of the glue lines 55 and 56 previously described.

[0033] At this point, the phases that take place in the machine automatically and which are shown in the following figures, are described.

[0034] Figure 7 shows how the various panels are moved together to reach a subsequent step for forming the tray. More specifically, it can first of all be noted that two lines of glue 58 are applied on opposite free side edges of the small-sized panel 4, shaped in the form of an isosceles trapezoid on one side of the tray. On the other side, it can be noted that two lines of glue 59 are applied on opposite free side edges of the panel having reduced dimensions 5, shaped in the form of an isosceles trapezoid.

[0035] At this point, the triangular panels 9 and 12, which extend from the peripheral panels 8 and 13, shaped in the form of an isosceles trapezoid, are folded towards the inside of the tray being formed i.e. towards the central internal panel 54. Equivalently, the triangular panels 20 and 17 are folded, which extend from the peripheral panels 8 and 13, shaped in the form of an isosceles trapezoid, also towards the inside of the tray being formed i.e. towards the central internal panel 54.

[0036] The small-sized panel 4 is now pushed from one side towards the two triangular panels 9 and 12 so as to bring the glue lines 58 to face each other between the parts (figure 8) in order to glue and constrain the panels together. From another side, the small-sized panel 5 is pushed towards the two triangular panels 8 and 13 so as to bring the glue lines 59 to face each other between the parts in order to glue and constrain the respective panels together.

[0037] In this way, the internal edges of the tray that is formed in its internal part are constrained. Otherwise, the peripheral panels 18 and 10 respectively protruding from the side panel 52 and free with respect to the main panel 51, are still left flat.

[0038] Figures 9 and 10 show how to proceed in a subsequent phase when the peripheral panels 18 and 10 are brought into contact with the small-sized panels 5 and 4 respectively.

[0039] The transverse peripheral panels 18 and 10 are brought to face each other and come into contact with glue lines 60, arranged centrally on the small-sized panels 5 and 4. In the same way, glue lines 61 are arranged

on the panels with a rectangular flap 19 and 11 of the longitudinal peripheral panels 18 and 10 which extend outwardly from the side panel 52. These glue lines 61 are brought to face each other and come into contact with the two shorter sides 2 and 3 of the rectangular frame of the main panel 51, reciprocally blocking each other.

[0040] The tray is thus formed as shown in figures 11 and 12 both on the short side and on the long side.

[0041] As can be seen, this type of tray is formed from a single blank and, once the glue lines have been prepared and activated, it is able to remain open by itself without the aid of further sheets of paper or plastic material, such as a lining.

[0042] The tray is particularly sturdy as the main panel 51, as already mentioned, consists of a rectangular frame in a single piece which comprises two shorter sides 2 and 3 oriented longitudinally in the direction L and two longer sides 1 and 6 oriented transversely in the direction T.

[0043] The present invention also relates to a method for forming a container for containing a food product. The method can consist of producing a tray comprising a main panel with which a side panel is foldably associated, wherein the main panel, which consists of a rectangular frame comprising two shorter sides and two longer sides, is folded and superimposes the side panel by means of a folding invitation line defined between a longer side of the main frame panel and an adjacent strip of the side panel, said two panels folded over each other and superimposed being at least partially constrained by lines of glue.

[0044] In particular, the method prior to these steps provides for forming a blank or die-cut made of paper material or cardboard for food in a food tray, first in a main panel 51 with which a side panel 52 is foldably associated, wherein said main panel 51 consists of a rectangular frame comprising two shorter sides 2, 3 and two longer sides 1, 6, wherein said two shorter sides 2, 3 extend in a longitudinal direction L and said two longer sides 1, 6 extend in a transverse direction T.

[0045] This forming step also defines in the blank a central internal opening or cutout 53 of said main panel 51 from whose two shorter sides 2, 3 two smaller panels 5, 4 shaped in the form of isosceles trapezoids, extend in a transverse direction T towards said central internal opening or cutout 53.

[0046] In forming, the method further provides that said side panel 52 extends from one 6 of said two long sides 1, 6 of the main frame panel 51 by means of a strip 7, which acts as an attachment portion of the side panel 52.

[0047] In the forming, moreover, an internal panel 54 is defined in said side panel 52, central to the same, from which two transverse peripheral panels 8, 13 and two longitudinal peripheral panels 10, 18, in the form of an isosceles trapezoid, extend outwardly, on all four sides, from the central internal panel 54.

[0048] In particular, the method provides that one 8 of said transverse peripheral panels be associated with said strip 7, which acts as an attachment portion of the side panel 52, and one 13 of said transverse peripheral panels, opposite the previous one, is associated with a panel with a rectangular flap 16.

[0049] During the various steps for forming and folding the panels to produce the tray, the method provides that glue lines 55, 56, 58, 59, 60, 61 be arranged on the panels for joining overlapping panels or parts of them.

[0050] The method advantageously provides that, for producing the tray, it is preferably defined that the one transverse peripheral panel 8 provides for the formation of two triangular panels 20, 9 at its opposite side ends facing the adjacent longitudinal peripheral panels 18, 10. In particular, said longitudinal peripheral panels 18, 10 in turn extend outwardly into a longitudinal panel with a rectangular flap 19, 11. With respect to the other transverse peripheral panel 13, the method provides for forming, at its opposite side ends, two triangular panels 17, 12 also facing said adjacent longitudinal peripheral panels 18, 10, wherein said other transverse peripheral panel 13 extends outwardly into said panel with a rectangular flap 16.

[0051] The method then preferably provides steps wherein said strip 7, which acts as an attachment portion of the side panel 52, said longitudinal rectangular flap panels 19, 11 and said panel with a rectangular flap 16 are provided with glue lines 56, 61, 55.

[0052] Furthermore, in one step, it is provided that the transverse peripheral panel 13 in an intermediate area thereof provides a folding invitation line 15 which thus defines a panel part 14 of the same close to the central internal panel 54.

[0053] It should also be noted that with the present method in subsequent steps, the two panels having reduced dimensions 5, 4 of said main panel 51 are provided with two lines of glue 58 on opposite free side edges.

[0054] Similarly, glue lines 60 are arranged centrally on the small-sized panels 5, 4 which in turn are brought to face each other and come into contact with said transverse peripheral panels 18, 10.

[0055] Finally, glue lines 61 are arranged on panels with a rectangular flap 19, 11 of the longitudinal peripheral panels 18, 10 which extend outwardly from the side panel 52 and said glue lines 61 are brought to face each other and come into contact with the two shorter sides 2, 3 of the rectangular frame of the main panel 51, blocking each other.

[0056] Figures 13 to 24 show similar views and positions for a second embodiment of a blank useful for forming a tray according to the invention.

[0057] In this second embodiment of a blank for a tray, the same elements are indicated with the same reference numbers.

[0058] Additional elements with respect to those previously described relate to triangular panels 21, 22 and 23, 24 respectively, which extend from the two panels having reduced dimensions 5, 4, shaped in the form of isosceles trapezoids, of the main panel 51 with a rectan-

gular frame.

[0059] As can be seen from the specific figures, these triangular panels 21, 22 and 23, 24 respectively, extend from the tilted sides of the isosceles trapezoids and rest on the transverse peripheral panels 8 and 13 towards the inside of the tray being formed i.e. towards the central internal panel 54.

[0060] These triangular panels 21, 22 and 23, 24 respectively provide a reinforcement at the edges of the tray when formed by the folding of the various panels.

[0061] In the forming method, folding and positioning steps of these triangular panels 21, 22 and 23 and 24 respectively, are added.

[0062] A blank and a method are therefore created which are particularly suitable for the formation of a tray deriving from a blank or die-cut in a single piece which is formed and kept in its operating condition for receiving food exclusively thanks to the arrangement of its panels and glue lines that keep them constrained to each other, without adding other kinds of materials or sheets.

[0063] It cannot be excluded however that a plastic barrier lining can be applied to the inside so that food that releases a liquid portion can be accommodated.

[0064] The limits of the state of the art have thus been overcome, wherein in order to produce a functional tray, a paper or plastic element had to be arranged, that would keep the various panels of the blank together.

[0065] The objective mentioned in the preamble of the description has thus been achieved.

[0066] The protection scope of the present invention is defined by the enclosed claims.

Claims

1. A food tray produced from a blank or die-cut made of paper material or cardboard for food comprising:

- a main panel (51) with which a side panel (52) is foldably associated, wherein
- said main panel (51) consists of a rectangular frame, which is continuous, closed and without interruptions, and which comprises two shorter sides (2,3) and two longer sides (1,6), wherein said two shorter sides (2,3) extend in a longitudinal direction (L) and said two longer sides (1,6) extend in a transverse direction (T),
- two panels having reduced dimensions (5,4), shaped in the form of isosceles trapezoids extend from said two shorter sides (2,3) in a transverse direction (T) towards a central internal opening or cutout (53) of said main panel (51),
- said side panel (52) extends from one (6) of said two long sides (1,6) of the main frame panel (51) by means of a strip (7), which acts as an attachment portion of the side panel (52),
- wherein said side panel (52) comprises a central internal panel (54) from which two transverse peripheral panels (8,13) and two longitudinal peripheral panels (10,18) extend outwardly on the four sides, one (8) of said transverse peripheral panels being associated with said strip (7), which acts as an attachment portion of the side panel (52), and the other (13) of said transverse peripheral panels, opposite the previous panel, being associated with a panel having a rectangular flap (16),
- lines of glue being further provided (55,56,58,59,60,61) which join overlapping panels or parts thereof,

characterized in that said two transverse peripheral panels (8,13) and said two longitudinal peripheral panels (10,18) are shaped in the form of an isosceles trapezoid,
wherein said transversal peripheral panel (13) in an intermediate area thereof provides a folding invitation line (15) which thus defines a panel part (14) thereof close to the central internal panel (54).

2. The food tray according to claim 1, wherein one transverse peripheral panel (8) provides two triangular panels (20,9) at its opposite side ends, facing the adjacent longitudinal peripheral panels (18,10), wherein said longitudinal peripheral panels (18,10) in turn extend outwardly into a panel with a longitudinal rectangular flap (19,11), whereas the other transverse peripheral panel (13) provides two triangular panels (17,12) at its opposite side ends, also facing said adjacent longitudinal peripheral panels (18,10), wherein said other transverse peripheral panel (13) extends outwardly into said panel with a rectangular flap (16).

3. The food tray according to claim 2, wherein said strip (7), which acts as an attachment portion of the side panel (52), said panels with a longitudinal rectangular flap (19,11) and said panel with a rectangular flap (16) are provided with glue lines (56,61,55).

4. The food tray according to one or more of the previous claims, wherein triangular panels (21,22 and 23,24 respectively) extend from the two small-sized panels (5,4), shaped in the form of isosceles trapezoids, from the tilted sides of the isosceles trapezoids and are arranged resting on the transversal peripheral panels (8,13).

5. The food tray according to one or more of the previous claims, wherein said two panels having reduced dimensions (5,4) of said main panel (51) are provided with two glue lines (58) on opposite free side edges.

6. The food tray according to one or more of the previous claims, wherein glue lines (60) are arranged cen-

trally on the panels having reduced dimensions (5,4) which in turn are brought to face each other and come into contact with said transverse peripheral panels (18,10).

7. The food tray according to one or more of the previous claims, wherein glue lines (61) are arranged on panels with a rectangular flap (19,11) of the longitudinal peripheral panels (18,10) which extend outwardly from the side panel (52) and said glue lines (61) are brought to face each other and come into contact with the two shorter sides (2,3) of the rectangular frame of the main panel (51) blocking each other.

8. A method for forming a container for a food product, in particular a tray, by producing a blank in a single piece that comprises a main panel with which a side panel is foldably associated, wherein the main panel, which consists of a rectangular frame comprising two shorter sides and two longer sides is folded and superimposes the side panel by means of a folding invitation line defined between a longer side of the main frame panel and an adjacent strip of the side panel, said two panels folded over each other and superimposed being at least partially constrained by means of glue lines, wherein before said previous steps, a blank or die-cut made of paper material or cardboard for food in a food tray is formed first in a main panel (51) with which a side panel (52) is foldably associated, wherein said main panel (51) consists of a rectangular frame which comprises two shorter sides (2,3) and two longer sides (1,6), wherein said two shorter sides (2,3) extend in a longitudinal direction (L) and said two longer sides (1,6) extend in a transverse direction (T), wherein said forming step also defines in the blank, a central internal opening or cutout (53) of said main panel (51) from whose two shorter sides (2,3), two small panels (5,4), shaped in the form of isosceles trapezoids, extend in a transverse direction (T) towards said central internal opening or cutout (53), wherein in the forming, the method further provides that said side panel (52) extends from one (6) of said two long sides (1,6) of the main frame panel (51) by means of a strip (7), which acts as an attachment portion of the side panel (52), wherein, in the forming, in said side panel (52), there is also an internal panel (54) central with respect to the same, from which two transverse peripheral panels (8,13) and two peripheral longitudinal panels (10,18) shaped in the form of an isosceles trapezoid, which extend outwardly from the internal panel (54), extend on the four sides, wherein there is the provision that one (8) of said transverse peripheral panels is associated with said strip (7), which acts as an attachment portion of the side panel (52), and one (13) of said transverse peripheral panels opposite the previous panel, is associated with a panel having a rectangular flap (16), wherein during the various forming and folding steps of the panels for producing the tray, the method provides that lines of glue be arranged on the panels (55,56,58,59,60,61) which join overlapping panels or parts of the same,
characterized in that said two transverse peripheral panels (8,13) and said two longitudinal peripheral panels (10,18) are shaped in the form of an isosceles trapezoid, and
wherein it is provided that said transversal peripheral panel (13) in an intermediate area thereof provides a folding invitation line (15) which thus defines a panel part (14) thereof close to the central internal panel (54).

9. The method according to claim 8, wherein there is the provision that in order to produce the tray, one transverse peripheral panel (8) provides for forming two triangular panels (20,9) at its opposite side ends, facing the adjacent longitudinal peripheral panels (18,10). In particular, said longitudinal peripheral panels (18,10) extend in turn outwardly into a panel with a longitudinal rectangular flap (19,11); and with respect to the other transverse peripheral panel (13), there is the provision that two triangular panels (17,12) are formed at its opposite side ends, also facing said adjacent longitudinal peripheral panels (18,10), wherein said other transverse peripheral panel (13) extends outwardly into said panel having a rectangular flap (16).

10. The method according to one of the previous claims from 8 or 9, wherein steps are provided wherein said strip (7), which acts as the attachment portion of the side panel (52), said panels with a longitudinal rectangular flap (19,11) and said panel with a rectangular flap (16), are provided with glue lines (56,61,55).

11. The method according to one or more of the previous claims from 8 to 10, wherein in subsequent steps, the two panels having reduced dimensions (5,4) of said main panel (51) are provided with two glue lines (58) on free opposite side edges.

12. The method according to one or more of the previous claims from 8 to 11, wherein glue lines (60) are arranged centrally on the small-sized panels (5,4) which in turn are brought to face each other and come into contact with said transverse peripheral panels (18,10).

13. The method according to one or more of the previous claims from 8 to 12, wherein glue lines (61) are arranged on panels with a rectangular flap (19,11) of the longitudinal peripheral panels (18,10) which extend outwardly from the side panel (52) and said glue

lines (61) are brought to face each other and come into contact with the two shorter sides (2,3) of the rectangular frame of the main panel (51) blocking each other.

14. The method according to one or more of the previous claims from 8 to 13, wherein triangular panels (21,22 and 23,24 respectively) extend from the tilted sides of the isosceles trapezoids and are arranged on the transverse peripheral panels (8,13) towards the inside of the tray being formed i.e. towards the central internal panel (54).

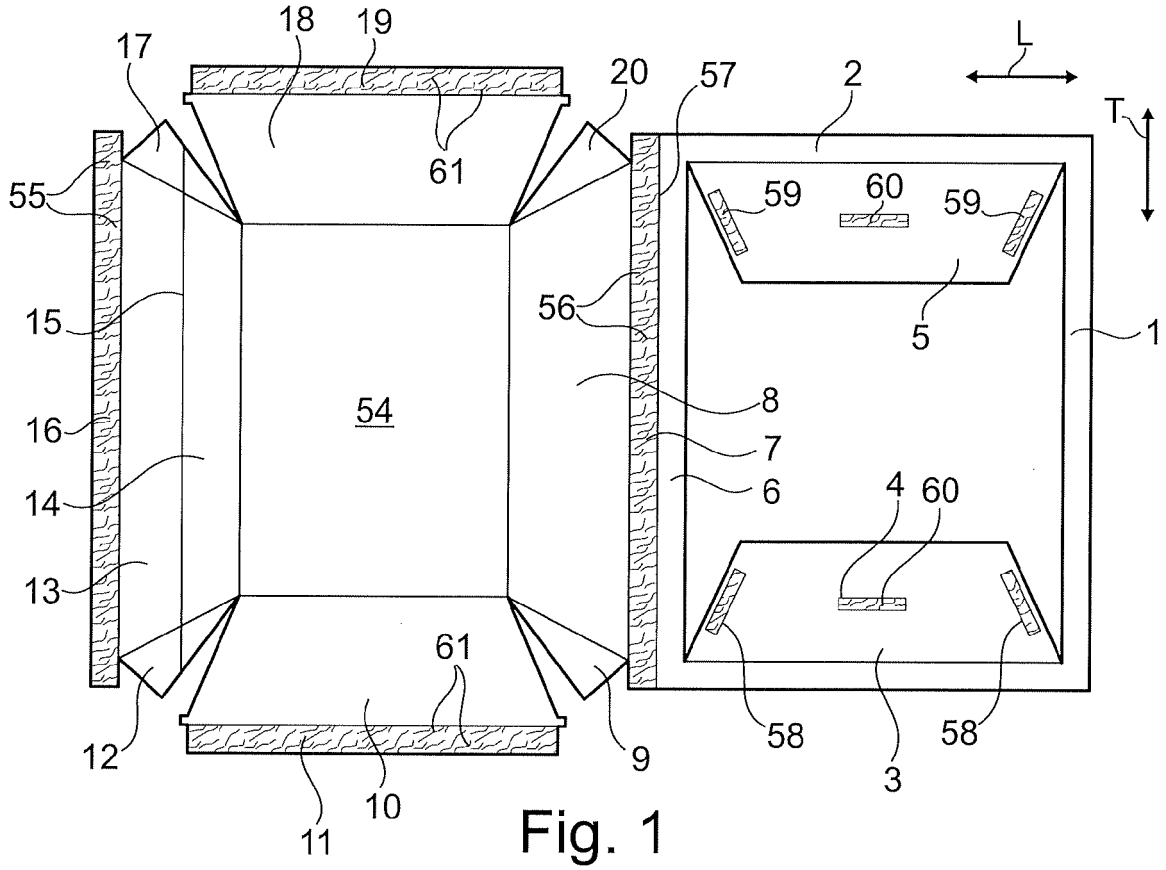
18
19
17
20
57
2
L
T
55
61
59
60
59
15
56
5
1
54
8
16
7
14
6
4
60
13
61
58
58
12
9
3
10
11

Fig. 1

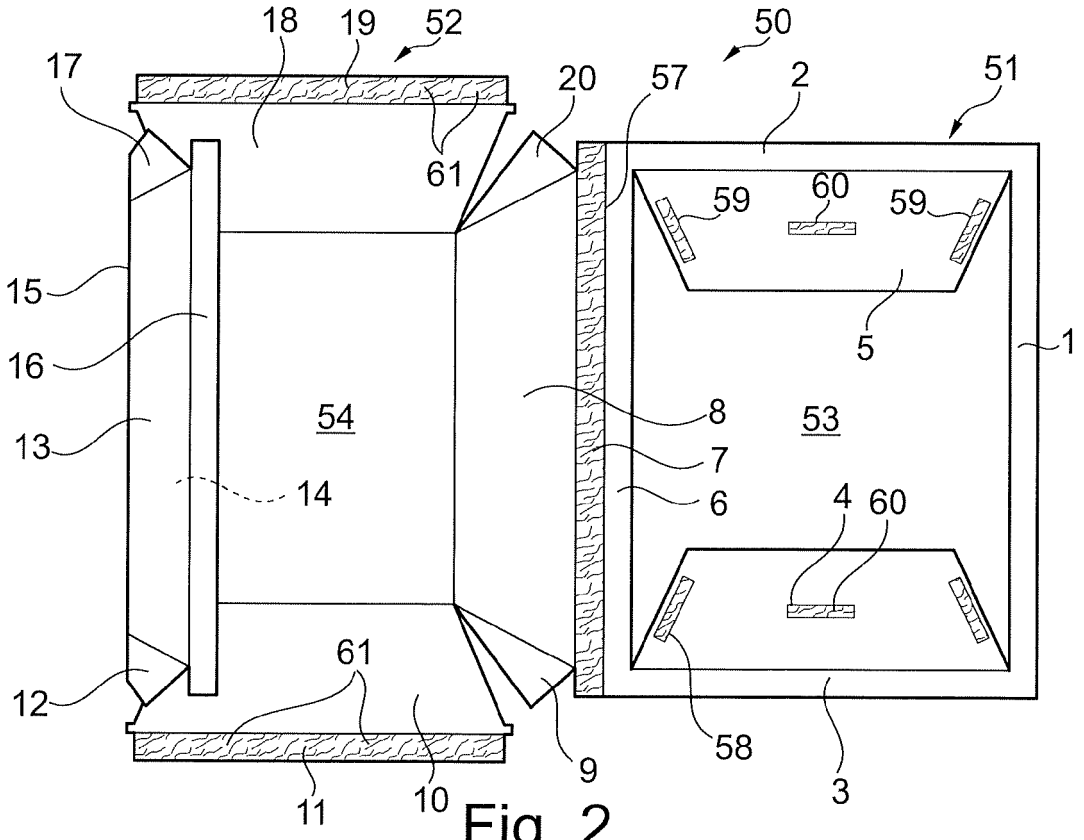
18
19
52
50
17
20
57
2
51
61
59
60
59
15
5
1
16
54
8
53
13
7
14
6
4
60
61
58
12
9
3
10
11

Fig. 2

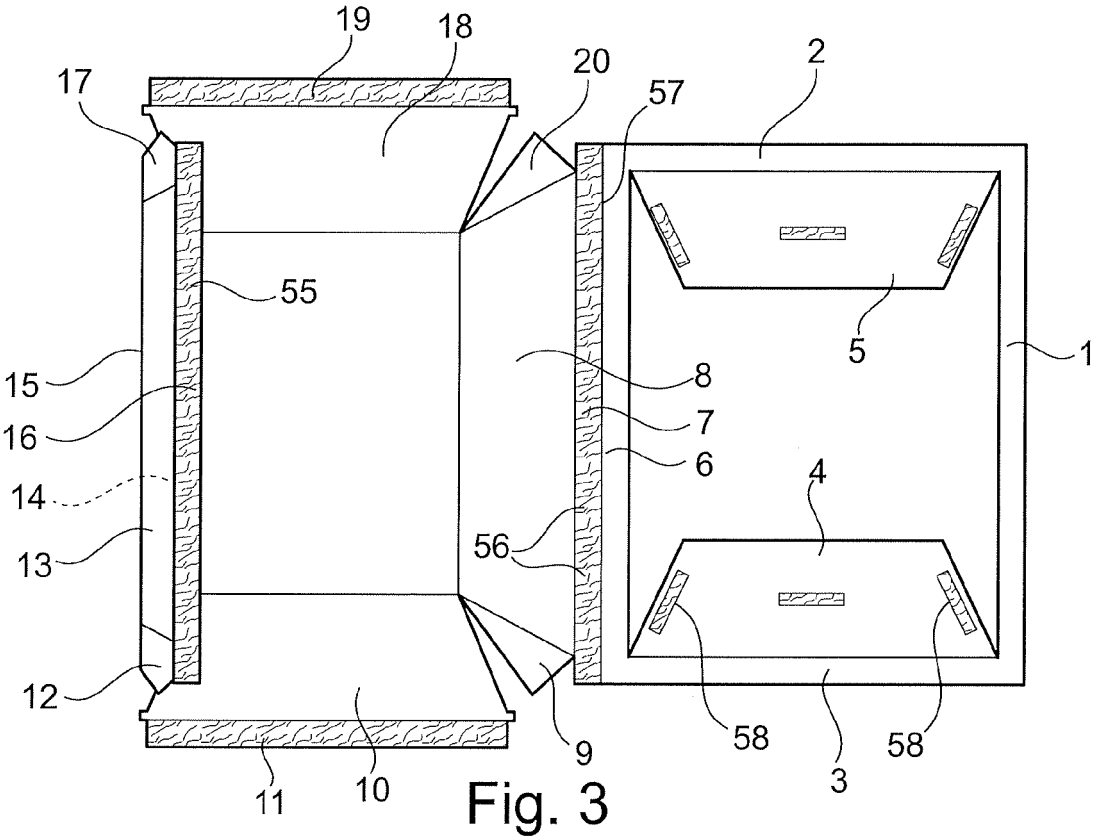
19
18
17
20
57
2
55
5
1
15
8
16
7
6
14
4
56
13
12
58
58
9
3
11
10

Fig. 3

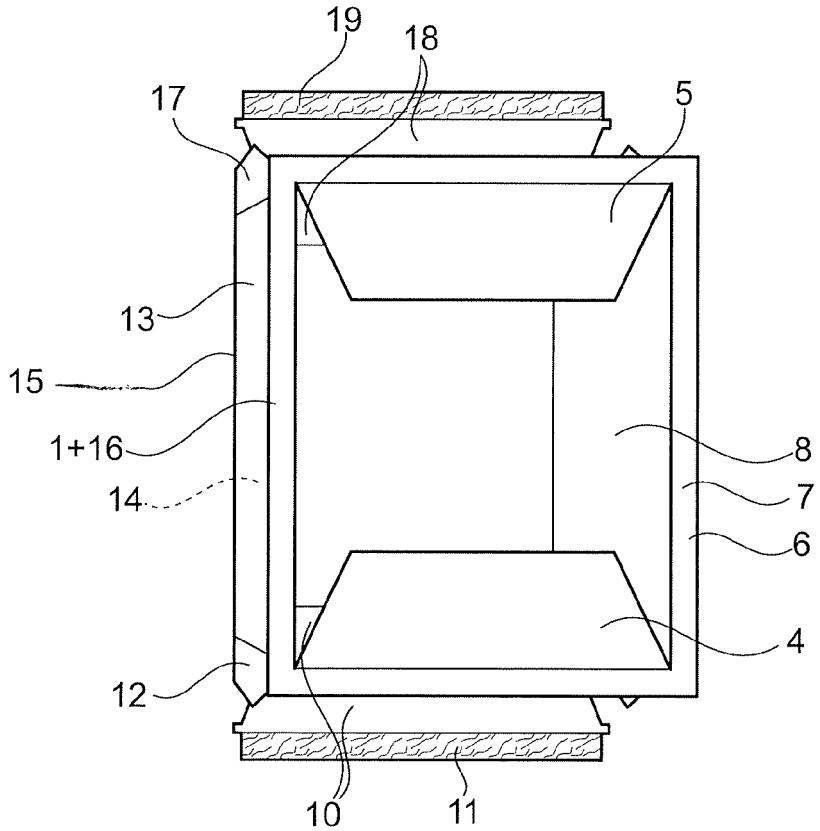
19
18
17
5
13
15
1+16
8
14
7
6
4
12
10
11

Fig. 4

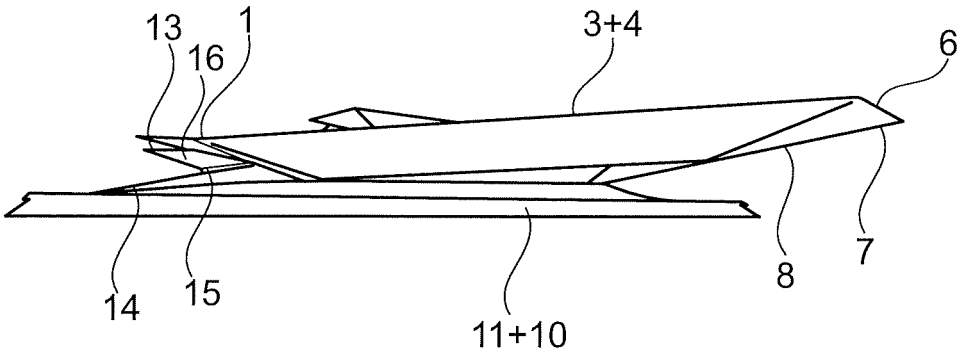

Fig. 5

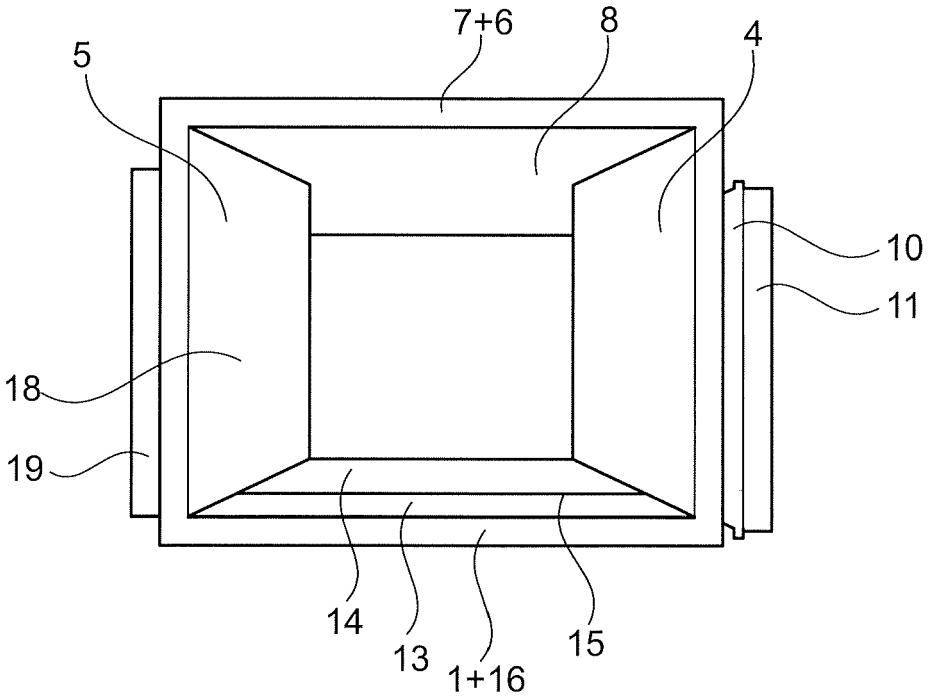

Fig. 6

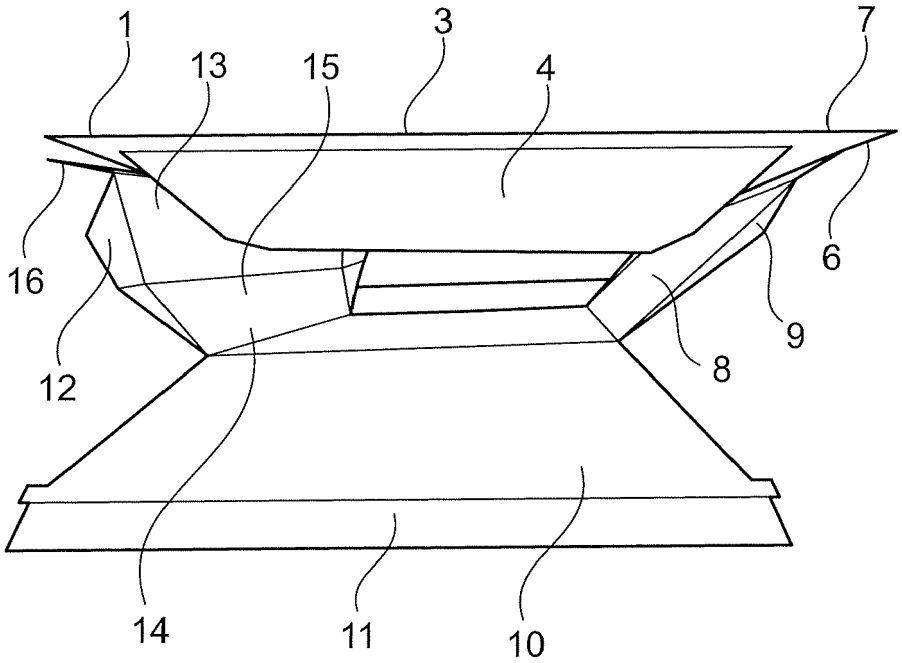

Fig. 7

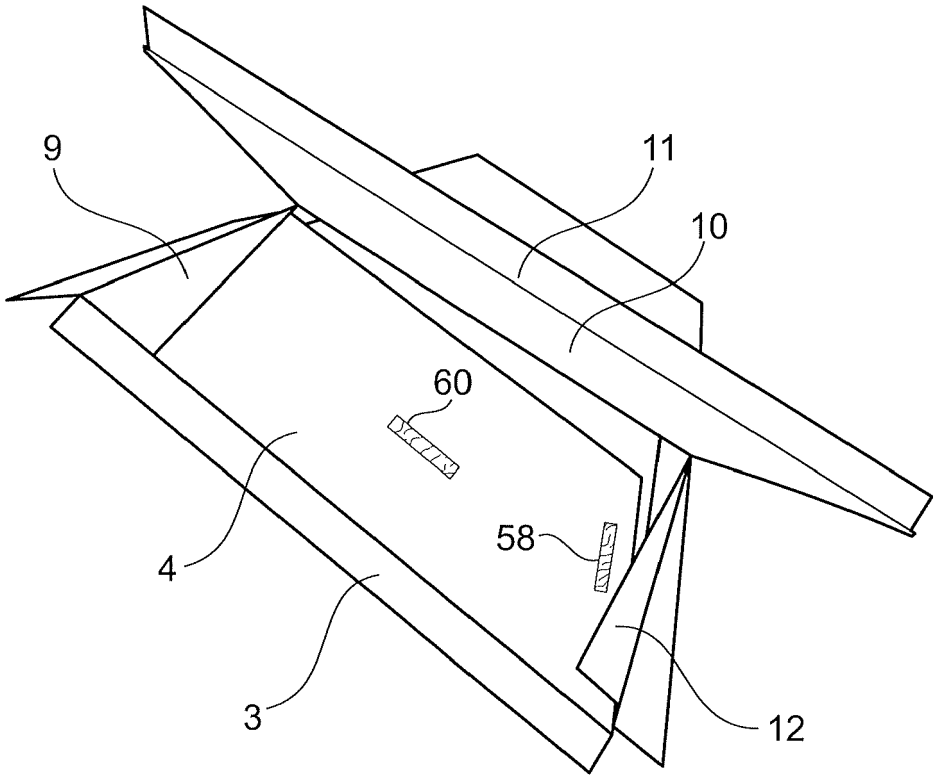

Fig. 8

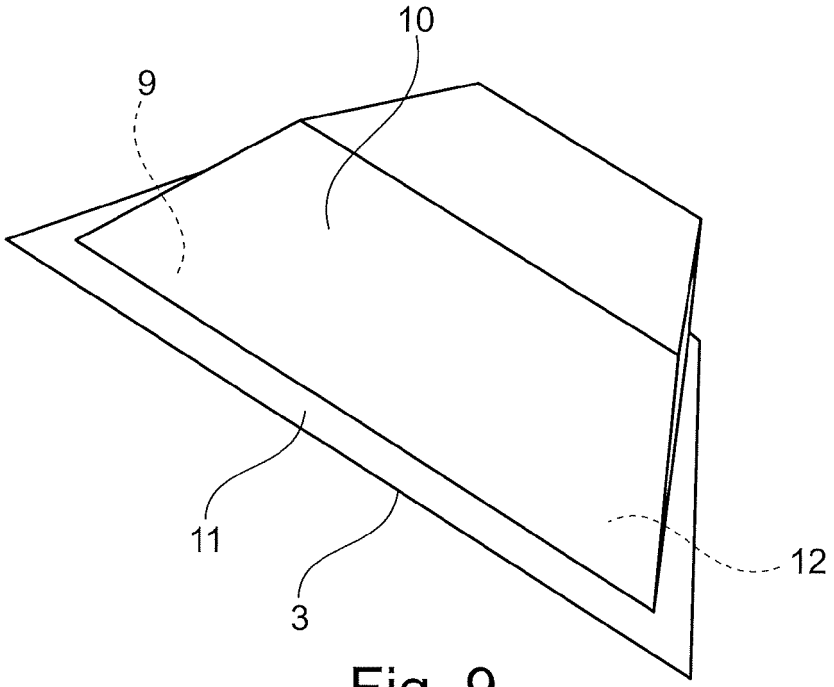

Fig. 9

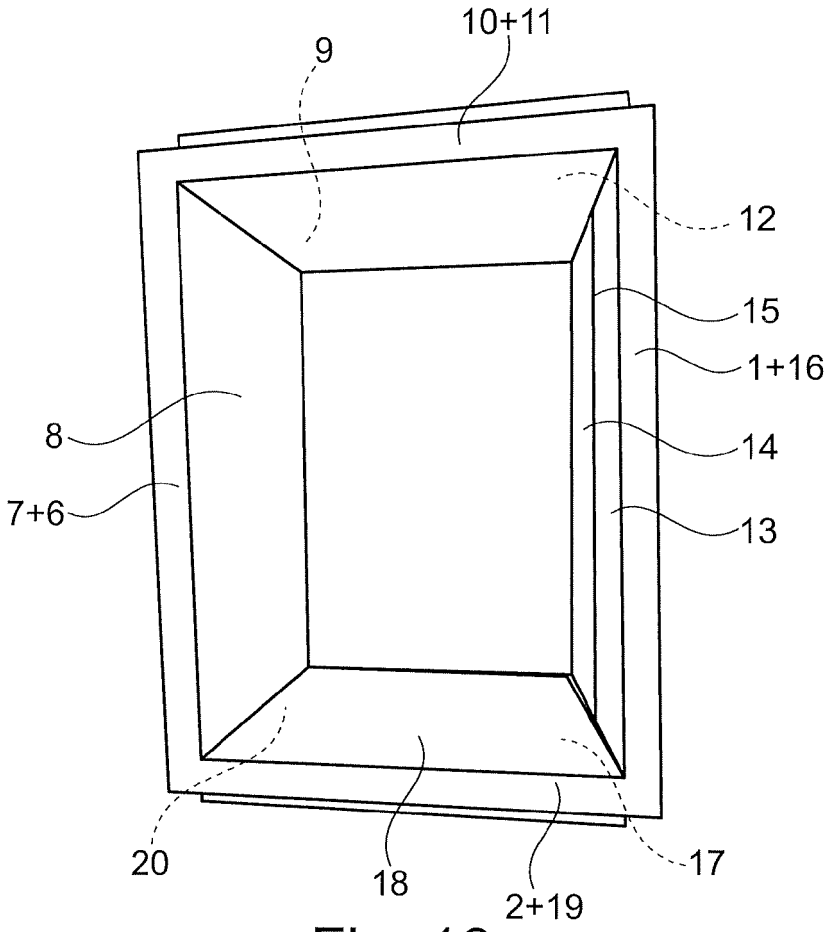

Fig. 10

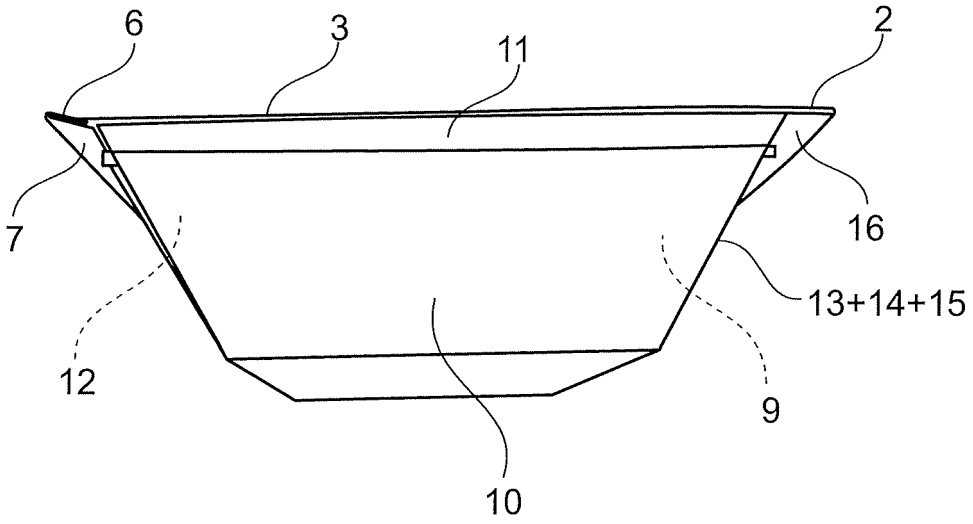

Fig. 11

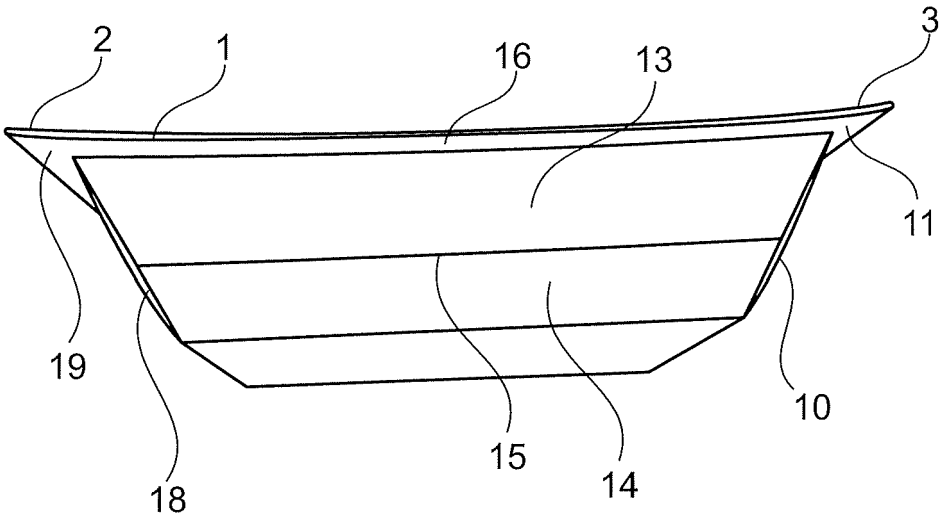

Fig. 12

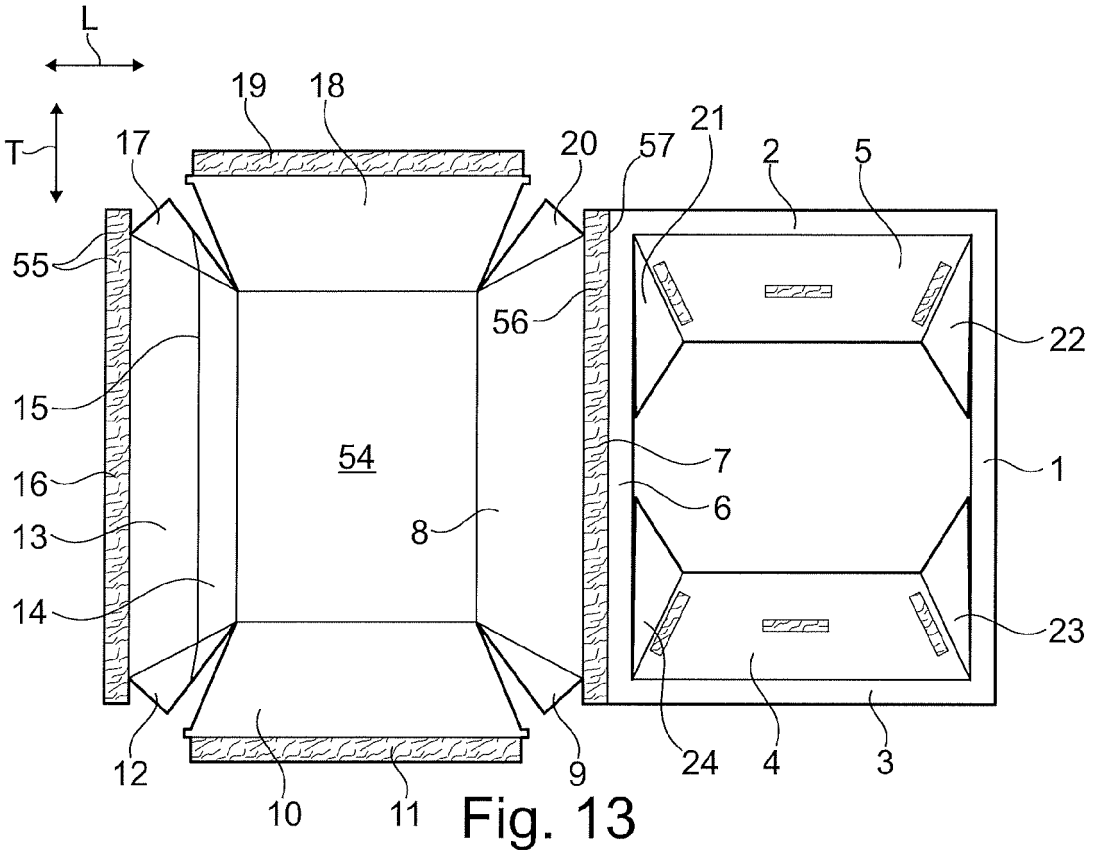
L
T
19
18
17
20
57
21
2
5
55
56
22
15
54
7
1
16
6
13
8
14
23
12
24
4
3
9
10
11

Fig. 13

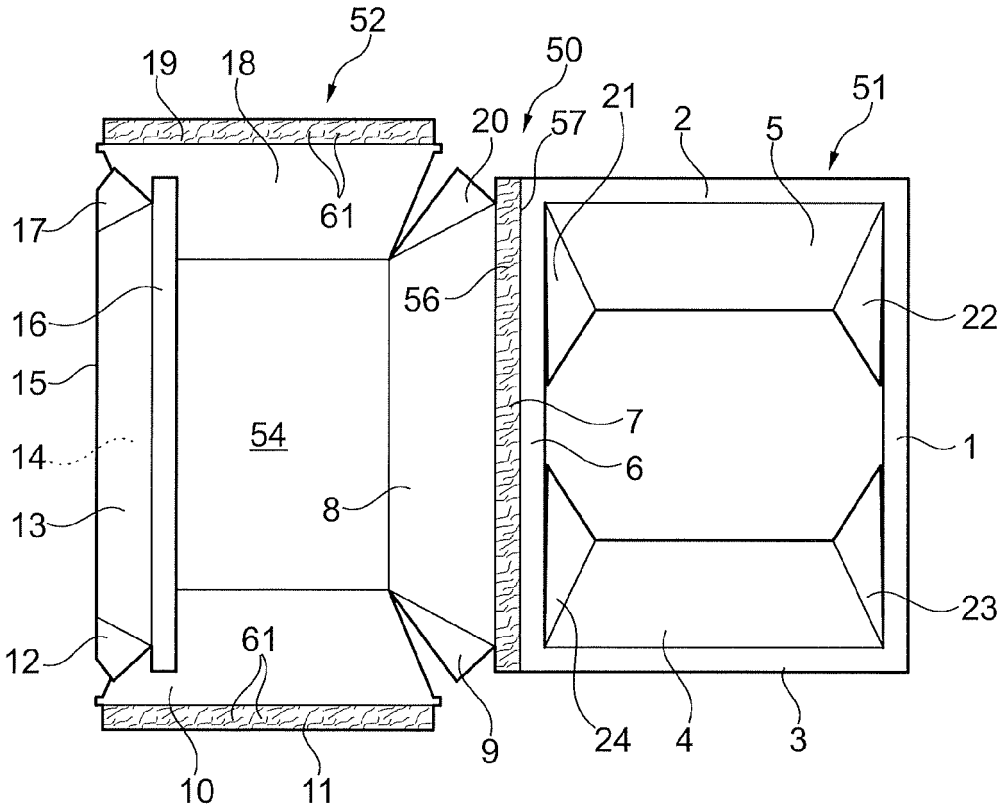
52
50
51
19
18
20
57
21
2
5
61
17
56
22
16
15
7
54
1
14
6
13
8
23
12
61
24
4
3
9
10
11

Fig. 14

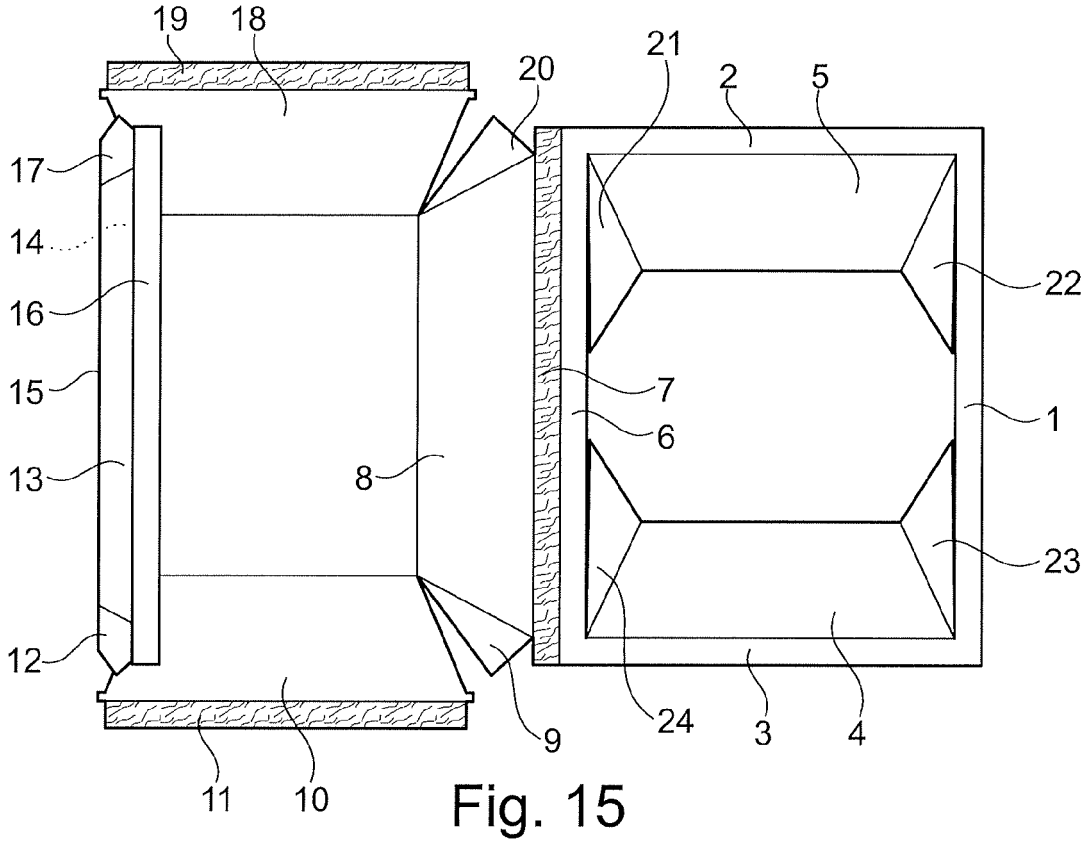
19
18
20
21
2
5
17
14
16
15
13
12
8
7
6
1
22
23
24
3
4
9
11
10

Fig. 15

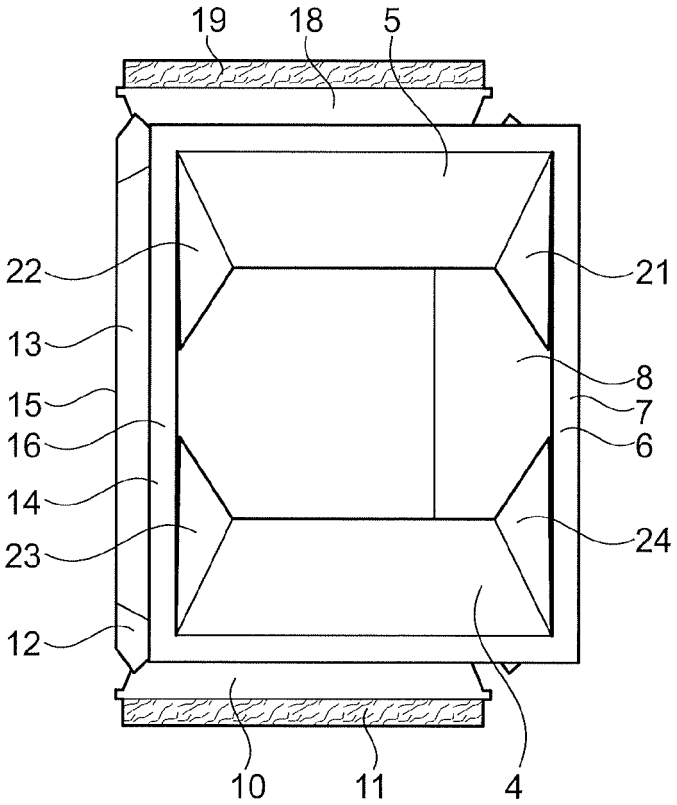
19
18
5
22
21
13
8
15
7
16
6
14
24
23
12
10
11
4

Fig. 16

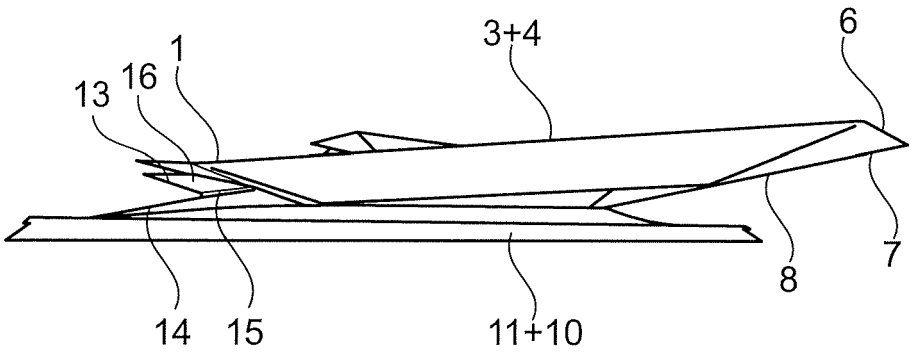

Fig. 17

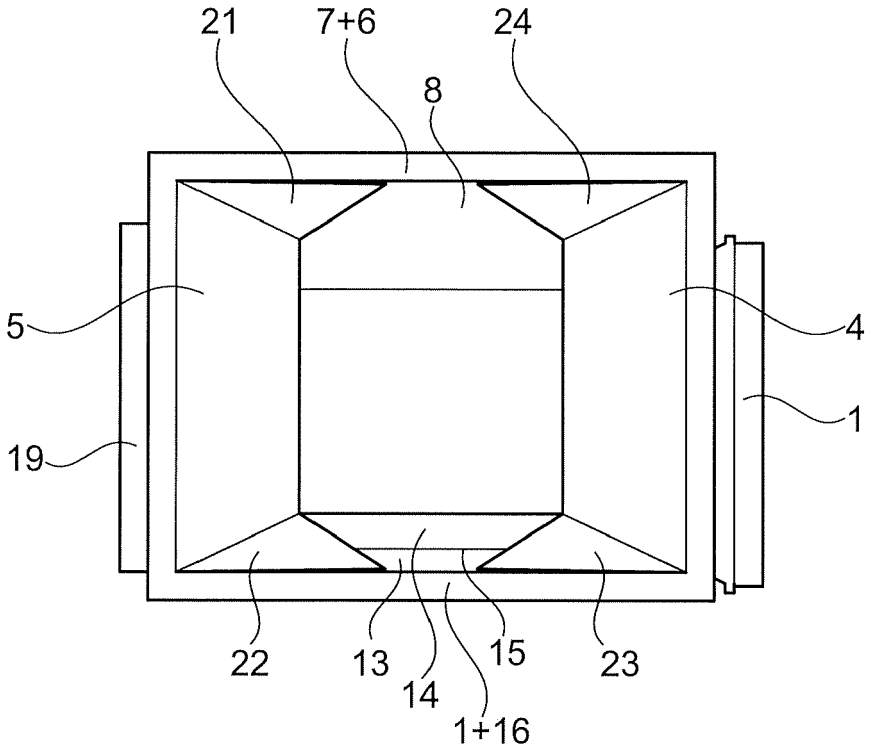

Fig. 18

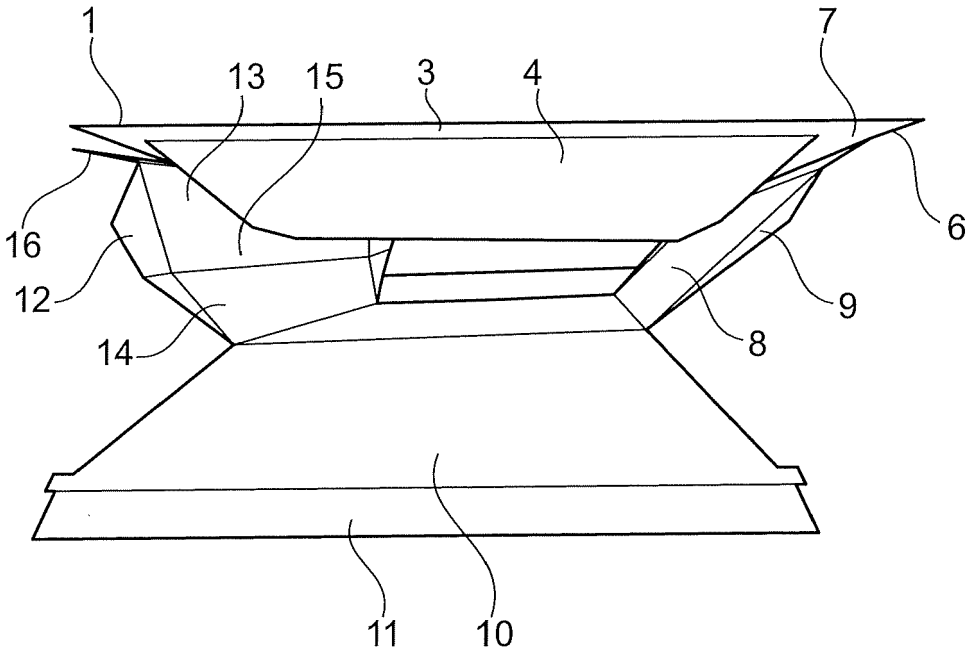

Fig. 19

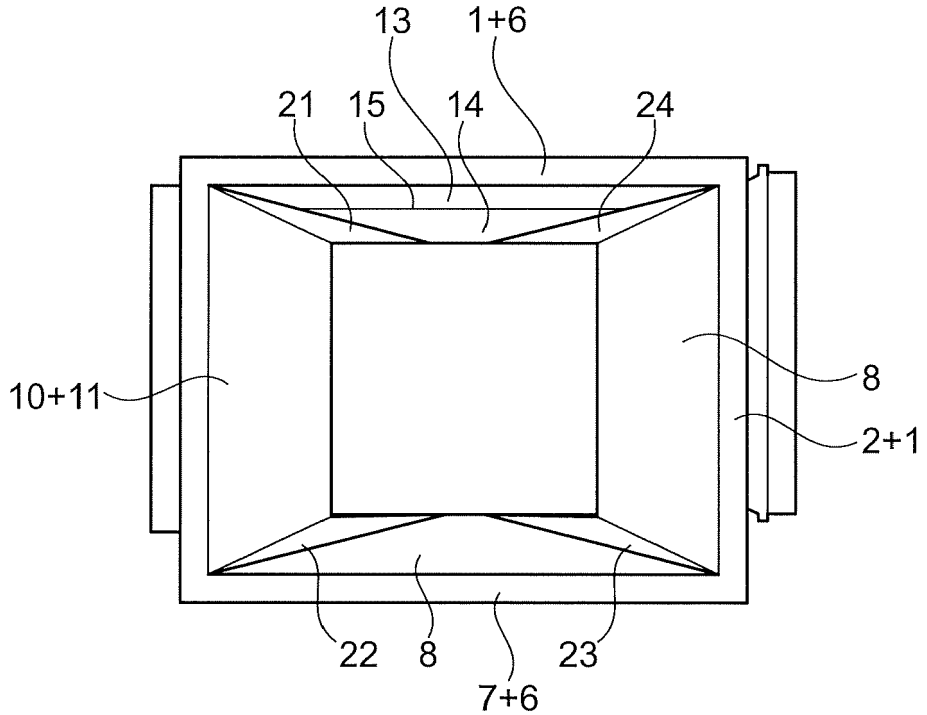

Fig. 20

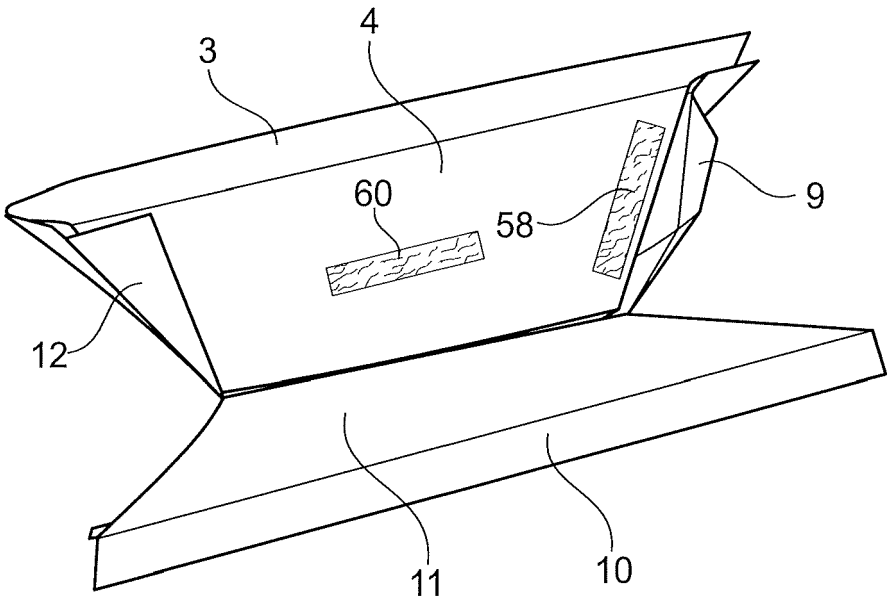

Fig. 21

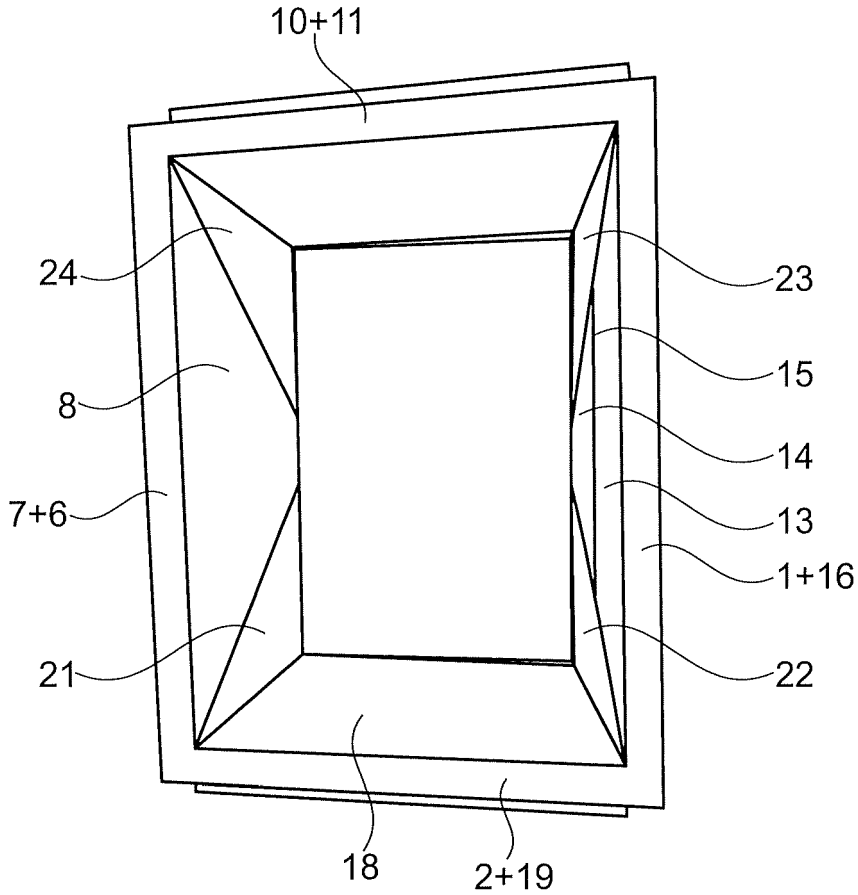

Fig. 22

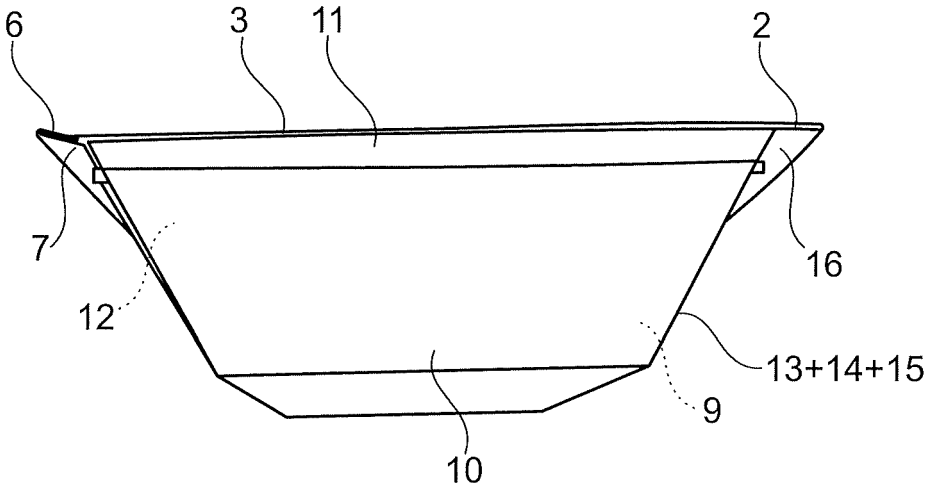

Fig. 23

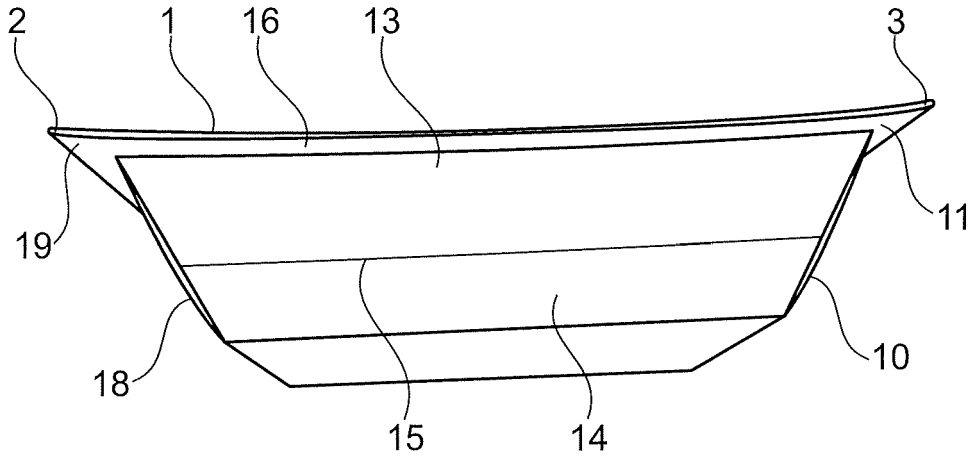

Fig. 24

Europäisches Patentamt
European Patent Office
Office européen des brevets

EUROPEAN SEARCH REPORT

Application Number
EP 21 17 4275

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A,D	JP 2006 290368 A (TOPPAN PRINTING CO LTD) 26 October 2006 (2006-10-26) * figures 1-2 *	1,8	INV. B65D5/20
A	FR 2 290 358 A1 (AKERLUND & RAUSING AB [SE]) 4 June 1976 (1976-06-04) * figures 6, 7 *	1,8	

TECHNICAL FIELDS SEARCHED (IPC)

B65D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	21 October 2021	Bridault, Alain

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 21 17 4275

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

21-10-2021

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
JP 2006290368 A	26-10-2006	NONE	
FR 2290358 A1	04-06-1976	BE 835055 A	16-02-1976
		CA 1024119 A	10-01-1978
		CH 598999 A5	12-05-1978
		DE 2545411 A1	13-05-1976
		DK 475175 A	09-05-1976
		ES 216496 U	01-08-1976
		FI 753007 A	09-05-1976
		FR 2290358 A1	04-06-1976
		GB 1500304 A	08-02-1978
		IT 1043284 B	20-02-1980
		JP S5519822 B2	29-05-1980
		JP S51103574 A	13-09-1976
		NL 7512233 A	11-05-1976
		SE 400250 B	20-03-1978
		US 4019675 A	26-04-1977
		ZA 756379 B	29-09-1976

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- JP 2006290368 A **[0006]**