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(71) Applicant: TRAVEL SMART LTD. [IL/IL]; 2 Sapir Street, 4685206 Herzliya (IL).

(72) Inventor: HAIMOFF, Efraim; 2 Hazamir Street, 9079502 Mevaseret Zion (IL).

(74) Agent: SOKOL, Edith; REINHOLD COHN AND PARTNERS, P.O.B. 13239, 6113102 Tel Aviv (IL).

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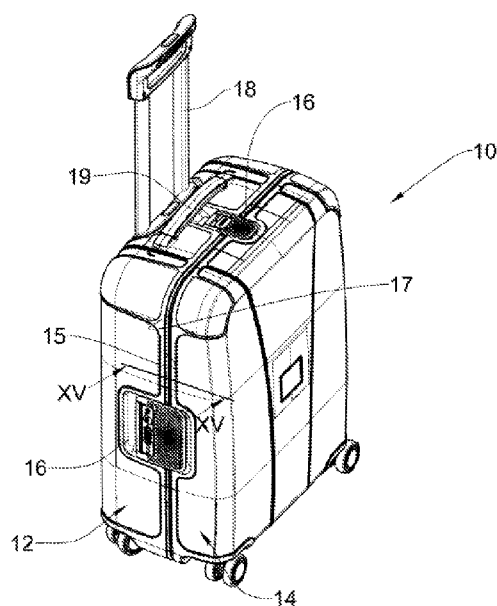


Fig. 1

(57) Abstract: The present disclosure concerns cases and accessories therefor. More particularly the disclosure is directed to cases and an attachable supporting frame member configured for supporting and attaching pliable accessories to said case.



CASE AND SUPPORTING FRAME MEMBER THEREFOR

TECHNOLOGICAL FIELD

The present disclosure concerns cases and accessories therefor. More particularly the disclosure is directed to cases and an attachable supporting frame member configured for supporting and attaching pliable accessories to said case.

The term '*case*' is used herein in its broad sense and denotes, among others, luggage, suitcases, trolleys, bags, tool bags, containers and the like.

BACKGROUND ART

References considered to be relevant as background to the presently disclosed subject matter are listed below:

- US 6,073,738
- US 8,960,391

Acknowledgement of the above references herein is not to be inferred as meaning that these are in any way relevant to the patentability of the presently disclosed subject matter.

GENERAL DESCRIPTION

Different cases, such as suitcases and the like, are often provided with various types of arrangements allowing the space defined by its walls to be divided and separated, at times defining compartmented sections. Further, a liner is often disposed adjacent the internal surface of the case's walls to conceal structural elements of the walls.

According to a first aspect of this disclosure, there is provided a case comprising a base member and a cover member, defining between them a case space, the base member having side walls extending between a base and a circumferential rim, and a frame member articulated to an inside face of the side walls, said frame member being integrally molded with at least one of both a divider dividing the case space into

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respective base and cover compartments, and a liner extending in close proximity with an inside surface of the base member

The cover member of the case may have a similar structure to that of the base member, and may also be associable with at least one of a divider and a liner as described herein.

According to a second aspect, provided is a frame member configured for articulation to an inside face of side walls of a base member of a case, said frame member being integrally molded with at least one of both a divider dividing a case space defined by the base member and a cover member into respective base and cover compartments, and a liner extending in close proximity with an inside surface of the base member.

The frame member may be configured to bear lateral forces applied to side walls of the case.

In a case comprising a base member and a cover member articulated thereto, each of which comprising a frame member, the frame members are configured to bear against one another at a closed position of the case and are configured for bearing axial forces applied therebetween.

In accordance with an exemplary embodiment, one or both of the divider and the liner comprise a rigid frame element extending at least partially around the divider and/or liner circumference and configured for articulation of the divider or liner to side walls of the base member of the case.

According to another aspect there is provided a divider for dividing a case space into respective base and cover compartments. In accordance with an exemplary embodiment, the divider comprises a rigid frame element extending at least partially around its circumference, the frame being integrally molded with the divider. According to another exemplary embodiment, the divider may be configured to provide structural support to the case when attached thereto. In accordance with another embodiment, the divider is detachably attachable to the case.

According to yet an aspect, the present disclosure provides a liner for lining at least a portion of an inner surface of a case. The liner may be provided with a rigid frame element extending at least partially around its circumference. The liner can be a detachably attachable element. In accordance with an exemplary embodiment, the liner may have a basket-like structure having a perforated base member and at least one wall

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extending therefrom. The liner may be provided in a folded, substantially flat configuration and is configured to obtain a voluminous structure having a base and at least one wall extending circumferentially therefrom in its non-folded configuration.

The liner and the divider may, by some embodiments, be configured for mutual engagement and/or for detachable connection to the case.

Any one or more of the following features, design and configurations can be applied to respective aspects of the present disclosure, either separately or in various combinations thereof:

- The frame member may be snapingly articulated to the inside face of the side walls of the base member. Fasteners can be applied for securing the frame member to the side walls thereof;
- The frame member may be a solid unitary member, or a interrupted member have segments articulated to respective portions of the side walls of the case;
- The divider may be rigid, pliable or flexible. The divider may be solid or configured with portions having different rigidities;
- The divider may be configured with one or more pockets. The one or more pockets can be configured at either face of the divider. The one or more pockets can be closeable.
- The divider may be made of or include portions made of a mesh or perforated sheet material;
- The liner may have a three-dimensional shape conforming to the inside shape of the base member. According to one example the liner has a basket-like shape;
- The liner may comprise a closeable opening allowing excess into a space extending behind the liner;
- The frame member may be detachably attachable to the side walls of the base member;
- The frame member may be articulated to the rim of the side walls of the base member or below said rim;
- The frame member may be configured as a reinforcing element for imparting the base member rigidity and structural support;
- The frame member may further be configured with securing straps extending across the side walls and designed to hold contents of the case in place. The

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securing straps may be detachably attachable to the frame member, e.g. slidably secured to the frame member;

- The frame member and/or the liner may be configured with openings at respective corners thereof, facilitating mounting thereof over securing straps extending from respective corners or portions of the side walls;

- The case's cover member may be pivotally articulated to the circumferential rim of the base member. According to one embodiment, the cover member is articulated to the base member by one or more snap-type fasteners. According to another embodiment the cover member is articulated to the base member by a continuous closure – e.g. a zipper;

- The cover member may be configured as a complimentary base member, increasing the storage space of the case, having side walls extending between a base and a circumferential rim configured for bearing over the circumferential rim of the base member;

- The cover member may be configured with a frame member articulated to an inside face of its side walls, said frame member being integrally molded with at least one of both a divider dividing the body member into respective front and rear compartments, and a liner extending in close proximity with an inside surface of the cover member;

- The frame member may be articulated to the rim of the base member. According to one configuration, the frame member has a generally L-shaped cross section, with a first leg portion articulated to the respective side wall of the base member and a second leg portion projecting inwards from the side walls. The second leg portion of the frame member can be configured with a substantially flat top surface and is configured for disposing in a face-to-face orientation with a similar frame member of the cover member. In use, the flat top surfaces bear against each other when the cover member rests over the base member;

- Alternatively, the second leg portion of the frame member may be configured with a projection-depression arrangement, for mating association with a respective frame member of the cover member configured with an opposite projection-depression arrangement. Such an arrangement provides adequate sealing of the case and increases its rigidity. The projection-depression arrangement can be one or both of at

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least a depressed portion and at least a projecting portion configured over the second leg portion of the frame member, such that at the closed state of the case a rim of the cover member rests over a rim of the base member and the frame member of the cover member engages the frame member of the base member;

- The side walls of the body member and of the cover member may comprise a frame-arresting groove extending about at least a portion of the side walls and configured for articulation therein of said first leg portion of the frame member;

- The divider may be formed of a flexible material having a high tensile strength with the frame member extending therearound being injection molded over the flexible material. The flexible material may be textile, mesh, perforated sheet, woven material, etc. Suitable materials include, but are not limited to, canvas, cloth, leather, and polymeric materials (e.g. nylon). The frame member can be made of injected plastic or composite material, providing a rigid though pliable frame;

- The divider and liner may be integrally molded with the frame member and may be integrally secured between a layer of plastic material extending over one of or both faces thereof;

- The frame member may comprise sheet-gripping arrangements for improving integration and grip of the divider and the liner to the frame member;

- The divider and/or liner gripping arrangements may be in the form of spikes projecting through edges of the divider and liner;

- The divider and/or liner gripping arrangements may be configured as openings extending through edges of the divider and/or liner, whereby plastic material of the frame member extends through said openings;

- The divider and liner may be made of or coated with a polymeric material suitable for bonding with the frame member during an over-molding process;

- The frame member may be configured with a resilient gasket at the second leg portion configured for improving sealing and closure engagement between the frame members of the base and cover members, or between the frame member of the base member and a rim of the cover member.

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BRIEF DESCRIPTION OF THE DRAWINGS

In order to better understand the subject matter that is disclosed herein and to exemplify how it may be carried out in practice, embodiments will now be described, by way of non-limiting examples only, with reference to the accompanying drawings, in which:

Fig. 1 is a top perspective view of a suitcase fitted with a frame member, according to an example of the present disclosure;

Fig. 2A is a perspective view of the suitcase of Fig. 1, at an open position;

Fig. 2B is an enlargement of the portion marked 2B in Fig. 2A;

Fig. 3A is a perspective view a suitcase fitted with a frame member, according to another example of the disclosure, at an open position;

Fig. 3B is an enlargement of the portion marked 3B in Fig. 3A;

Fig. 3C is an enlargement of the portion marked 3C in Fig. 3A;

Fig. 4 is a top perspective view of a divider in accordance with an embodiment of this disclosure;

Figs. 5A and **5B** illustrate the divider of Fig. 4 in a bottom perspective view, with Fig. 5B being an enlargement of the portion marked 5B in Fig. 5A;

Fig. 6A is a base member showing the receiving channel extending along portions of the base member;

Fig. 6B is an enlarged section of the channel, the section taken along line VI - VI in Fig. 6A;

Figs 7A to 7E illustrate the divider of Fig. 4 attached to the base member of Fig. 6A, with Figs. 7B and 7C showing an enlarged perspective and planar view, respectively, of a cross section taken along line VII - VII in Fig. 7A; Figs. 7D and 7E showing an enlarged perspective and planar view, respectively, of a cross section taken along line VIII - VIII, in Fig. 7A;

Fig. 7F is a sectioned view of a portion of the suitcase seen in Figs. 3A and 3B, at a closed position;

Fig. 8 illustrates a basket-shaped liner in its folded configuration (e.g. for the base member seen in the suitcase of Fig. 2A);

Figs. 9A to 9G illustrate the basket liner of Fig. 8, in a fully deployed position (9A and 9E) with Figs. 9B to 9G illustrating engagement portions of the basket liner frame member configured for attachment to the base member of Fig. 2A;

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Figs. 10A and 10B illustrate a base member in accordance with another embodiment of this disclosure, Fig. 10B being an enlargement of the portion marked 10B in Fig. 10A;

Figs. 11A and 11B illustrate an enlarged perspective and planar view, respectively, of a cross section taken along line X - X in Fig. 10A, with a basket liner being disposed in the case in a fully deployed configuration;

Fig. 12A is a top perspective view of a frame member configured with a divider and a liner, of the example seen in Fig. 2B;

Fig. 12B is an enlargement of the portion marked XII in Fig. 12A;

Fig. 12C is an enlarged sectioned view along line XII - XII in Fig. 12A;

Figs. 13A and 13B illustrate a cover member in accordance with another example, complimentary to the base member of Figs. 10-12, Fig. 13B being an enlargement of the portion marked 13B in Fig. 10A;

Figs. 14A and 14B illustrate an enlarged perspective and planar view, respectively, of a cross section taken along line XIII - XIII in Fig. 13A, with a basket liner being disposed therein in the cover member in a fully deployed configuration;

Figs. 15A and 15B are a sectioned perspective view and planar view along line XV - XV, of the closed suitcase seen in Fig. 1.

DETAILED DESCRIPTION OF EMBODIMENTS

Attention is directed to the annexed drawings illustrating examples of cases according to the present disclosure. Whilst the examples are directed to suitcases, and even more specifically to so-called trolleys, it is appreciated that the disclosed subject matter refers to any type of case.

In Fig. 1 there is illustrated a case, namely suitcase **10** configured with a shell-like base member **12** and a mating, shell-like cover member **14** pivotally articulated thereto and closable by several latches **16**. The base member **12** and the cover member **14** define between them a case space, and are both plastic molded. The case further comprises a telescopic handle **18** extending from a back face of the base member **12**, a carrying handle **19** at a top, and four swivel wheels **20**.

Each of the base member **12** and the cover member **14** has a circumferential open edge/rim designated **15** and **17**, respectively.

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It is appreciated that whilst in the illustrated example the base member and the cover member are shell-like elements, one or both of them can assume a substantially flat shape for reducing the case space. The base member and the cover member can be rigid or pliable and can assume different shapes and ornamentations.

As can be seen in Figs. 2A and 2B, the base member **12** is pivotally articulated to the cover member **14** along hinge **24**, in a rigid pivotal configuration (i.e. not facilitating expansion of the effective storage space).

Unlike to the arrangement illustrated in Figs. 2A and 2B, in Figs. 3A and 3B there is illustrated a different arrangement, wherein the base member **32** is articulated to the cover member **34** by a flexible closure member, namely a zipper **36** extending around the rim of the base member and the cover member. Also, as known *per se*, the zipper arrangement can facilitate expansion of the effective storage space, if required.

Turning now also to Figs. 4 to 7 there is illustrated a divider frame according to an embodiment of the present disclosure, generally designated **40**, comprising a frame member **42** of generally rectangular shape with rounded corners and conforming with the shape of the circumferential edges **15** and **17** of the base member **12** and of cover member **14**, respectively. The divider is provided for dividing the case space into base and cover compartments.

The divider frame **42** is integrated (i.e. integrally formed) with the divider **44** during a molding process. The divider **44** is net-like (or solid in the example of Figs. 4 and 5) and is stretched over the frame member **42**, and is further configured with a zipper **46** near three edges thereof, to thereby expose and allow access to a compartment there behind.

It is appreciated that the divider can likewise be configured with one or more pockets (not shown) for storage of small articles at one or both of its faces.

The frame member **42** has an L-like cross section with a first leg portion **48** configured with openings **50** and lateral snap projections **52**, whereby the first leg portion **48** is configured for snap articulation to the base member **12** or cover member **14**, respectively. The second leg portion **56** is over-molded with the divider **44** and extends in continuation thereto through a transition molded portion **57**.

As can be seen best in Figs. 6A and 6B, the base member **12**, and the cover member **14**, are configured at their respective edges **15** and **17** with a frame receptacle shaped as a duct **60** extending between and inside wall **62** and an outside wall **64**,

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wherein at least the inside wall **62** is configured with openings **68** for snappingly receiving the lateral snap projections **52** of the first leg portion **48**.

Frame member **42** is a rigid plastic molded element, and once snappingly articulated to the edge **17** of the cover member **12**, rendering rigidity and sturdiness to the case. This arrangement also receives the divider, however concealing the frame receptacle (namely frame receptacle **60**), as seen best in Figs. 7A to 7D. Further noted, the second leg portion **56** of the frame member **42** has a planar, smooth top surface **69**. Accordingly, the arrangement is such that at the closed position (Fig. 7F) the top surface **69** of the frame member **42** of the cover member **14** bears over the top surface **69** of the frame member **42** of the base member **12**, such that loads are born thereby, imparting the closed case with increased rigidity.

The arrangement is such that the frame member **42** articulated to each of the base member **12** and the cover member **14**, is configured to bear lateral forces applied to side walls of the case.

Furthermore, the arrangement is such that each of the base member **12** and a cover member **14** comprises a frame member, such that in the closed position the frame members bear one against the other and are configured for bearing axial forces applied therebetween, i.e. forces applied in a direction between the base member and the cover member.

Fig. 8 is a bottom view of a fabric liner generally designated **90** useful for serving as a liner extending in close proximity with an inside surface of the base member, for concealing the base member and applying a cover over possibly rough surfaces of the base/cover member. Thus, the liner **90** has a three-dimensional shape generally conforming with the inside shape of the respective base member **12** or cover member **14**. As seen in Figs. 9A to 9G, the liner **90'** extends from the frame member **94** and is integrally molded therewith in an over-molding process.

It is seen, however, that the liner **90'** seen in Figs. 9A to 9G is somewhat different from liner **90** of Fig. 8 in that respect that it is configured at its four respective corners with a cutout **96**, facilitating extension of securing straps extending from respective corner wall portions of the base member and cover member and used to hold contents of the case in place. As will be illustrated hereinafter, the disclosure refers also to securing straps articulated to the frame member, whereby the cutouts **96** are not needed.

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The frame member **94**, similar to the arrangement of frame member **42** disclosed hereinabove, has a general rectangular shape with rounded corners and conforming with the shape of the circumferential edges **15** and **17** of the base member **12** and of cover member **14**, respectively. However, in the present example, the frame member **94** has an annular groove **100** extending between an inner vertical circumferential leg portion **102** configured with lateral snap projections **104**, and an outer circumferential leg portion **106**, configured with lateral snap projections **108**. A lateral top portion **112** of the frame member **94** is configured an annular depression **114** for receiving a resilient gasket **118** of the cover member (Figs. 15A and 15B), provided for sealing and dampening the closing of the cover member **14** over the base member **12**.

The liner **90'** is integrally molded with a flanged, flat portion **120**, extending laterally inwardly (i.e. towards the case space) from the frame member **94**, such that corresponding flat portions of the frame member of the cover member bear against each other when in the closed position of the case (Figs. 15A and 15B).

In turn, the base member **12** (Figs. 10 and 11) is a shell-like member with a top edge **15** configured with an annular recess **115** extending between an external vertical wall portion **117** having snap windows **118** (corresponding in location and size with projections **102** of frame member **94**), and an inside vertical wall portion **119** having snap windows **121** (corresponding in location and size with projections **108** of frame member **94**). Accordingly, once the frame member **94** is placed in the annular recess **115**, the snaps **108** and **102** snapingly engage within respective openings **121** and **119**, so that the frame member becomes arrested to the base member **12**.

In Figs. 12A to 12C, there is illustrated a frame assembly generally designated **140**, comprising a frame member **142** of generally rectangular shape with rounded corners and conforming with the shape of the circumferential edges **17** of the cover member **14**. In the present example, the frame member **142** has an annular tapering projection **146** (corresponding with annular groove **100** of base frame member **94**), and further comprising an outer circumferential leg portion **148** configured with lateral snap projections **150**, and an inner vertical annular leg portion **152** configured with lateral snap projections **154**. An annular groove **158** accommodates resilient gasket **118**.

Also, there is a liner **90''** integrally molded with a flanged, flat portion **162**, extending laterally inwardly from the frame member **142**, such that corresponding flat portions **164** (of the cover member **14**) and **120** (of the base member **12**) bear against

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each other in the closed position of the case, as seen in Figs. 15A and 15B, with the gasket **118** clamped over annular groove **114** of the base member frame.

It is further seen in Figs 12A-12C, that the frame member **142** of frame assembly **140** of the cover member **14**, is integrally molded also with a divider **44** similar to the disclosure hereinabove with reference to Figs. 2 to 7, and wherein said divider **44** extends from flanged, flat portion **162**, integrally molded therewith in an over-molding process.

The cover member **14** (Figs. 13 and 14) is a shell-like member with a top edge **17** configured with an annular recess **125** extending between an external vertical wall portion **127** having snap windows **129** (corresponding in location and size with projections **150** of frame member **142**), and an inside vertical wall portion **131** having snap windows **121** (corresponding in location and size with projections **154** of frame member **142**). Accordingly, once the frame member **142** is placed in the annular groove **100**, the snaps **150** and **154** snapingly engage within respective openings **121** and **129**, so that the frame member becomes arrested to the cover member **14**.

As can thus be seen in Figs. 15A and 15B, at the closed position of the case **10** (corresponding with Fig. 1 of the drawings) the annular tapering projection **146** of the frame member **140** projects into annular groove **100** of frame member **94** and the resilient gasket **118** bears over annular groove **114**, rendering the closed case with a closed, sealed and reinforced position.

With reference back to Fig. 3C, the frame member **42** is fitted at its respective corners with a coupler **179** to which a securing strap can be detachably attachable by a fastener **183**.

CLAIMS:

1. A case comprising a base member and a cover member, defining between them a case space, the base member having side walls extending between a base and a circumferential rim, and a frame member articulated to an inside face of the side walls, said frame member being integrally molded with at least one of both a divider dividing the case space into respective base and cover compartments, and a liner extending in close proximity with an inside surface of the base member.
2. The case of claim 1, wherein the frame member is snapingly articulated to the inside face of the side walls of the base member.
3. The case of claim 1 or 2, wherein the frame member is detachably attachable to the side walls of the base member.
4. The case of any one of claims 1 to 3, wherein the side walls of the base member comprise a rim, the frame member is articulated to or below said rim.
5. The case of any one of claims 1 to 4, wherein the frame member is configured with securing straps diagonally extending from respective corners thereof.
6. The case of claim 5, wherein the securing straps are detachably attachable to the frame member.
7. The case of any one of claims 1 to 6, wherein the frame member is a solid member or a segmented member.
8. The case of any one of claims 1 to 7, wherein the frame member has a generally L-shaped cross section, having a first leg portion articulated to the respective side wall of the base member and a second leg portion projecting from the side walls into the case space.
9. The case of claim 8, wherein the second leg portion is configured with a substantially flat top surface and is configured for disposing in a face-to-face orientation with a like frame member of the cover member.
10. The case of claim 8, wherein the second leg portion is configured with a projection-depression arrangement, for mating association with a respective frame member of the cover member being configured with a matching projection-depression arrangement.
11. The case of claim 10, wherein the projection-depression arrangement is one or both of a depressed portion and a projecting portion configured over the second leg

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portion of the frame member, such that when at the closed state of the case a rim of the cover member rests over a rim of the base member, the frame member of the cover member engages the frame member of the base member.

12. The case of any one of claims 8 to 11, wherein the side walls of the base member and of the cover member comprise a frame-arresting groove extending about at least a portion of the side walls and configured for articulation therein of said first leg portion of the frame member.

13. The case of any one of claims 8 to 12, wherein the frame member is configured with a resilient gasket at the second leg portion configured for improving sealing and closure engagement between the frame members of the base and cover members, or between the frame member of the base member and a rim of the cover member.

14. The case of any one of claims 1 to 13, wherein the frame member is configured to bear lateral forces applied to side walls of the case.

15. The case of any one of claims 1 to 14, wherein the base member and the cover member are articulated one to the other.

16. The case of claim 15, wherein the cover member is hingedly articulated to the base member along at least a portion of their respective rims.

17. The case of any one of claims 1 to 16, wherein each of the base member and the cover member case comprises a frame member, the frame members bearing against each other at a closed position of the case and configured for bearing axial forces applied therebetween.

18. A frame member configured for articulation to an inside face of side walls of a base member of a case, said frame member being integrally molded with at least one of both a divider dividing a case space defined by the base member and a cover member into respective base and cover compartments.

19. A divider for a case, the divider being integrally molded with a frame member configured for articulation to an inside face of a side walls of a base member of a case, the divider comprises a rigid frame element extending at least partially around its circumference, the frame being integrally molded with the divider.

20. The divider of claim 19, being configured for detachable-attachable association with a case.

21. A liner for lining at least a portion of an inner surface of a case, the liner being provided with a rigid frame element extending at least partially around its

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circumference, the liner having a folded, substantially flat configuration and is configured to assume a voluminous structure having a base and at least one wall extending circumferentially therefrom in a non-folded configuration.

22. The liner of claim 21, being configured for detachable-attachable association with a case.

23. The liner of claim 21 or 22, having a basket-like structure.

24. The liner of any one of claims 21 to 23, configured for mutual engagement with the divider of claim 19 or 20.

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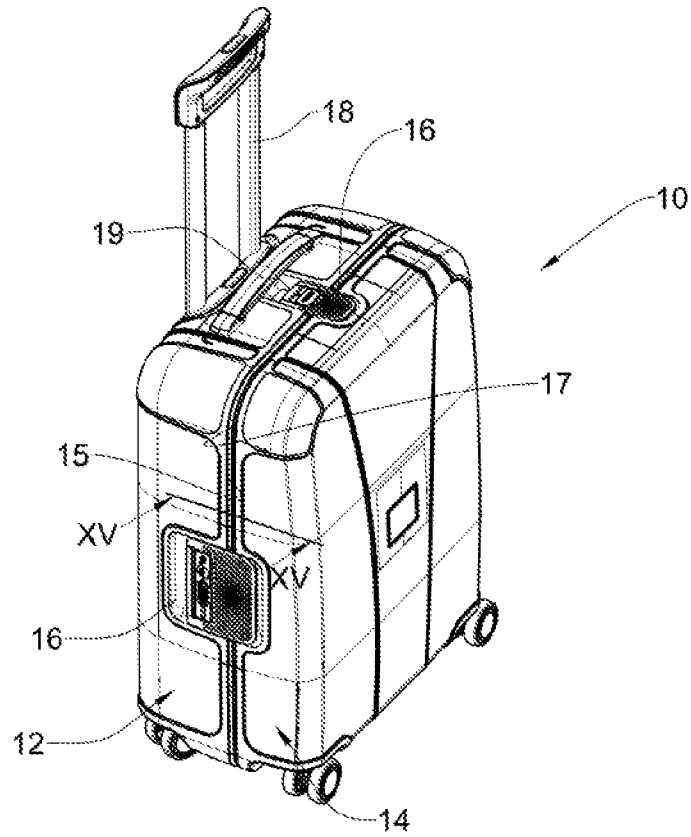
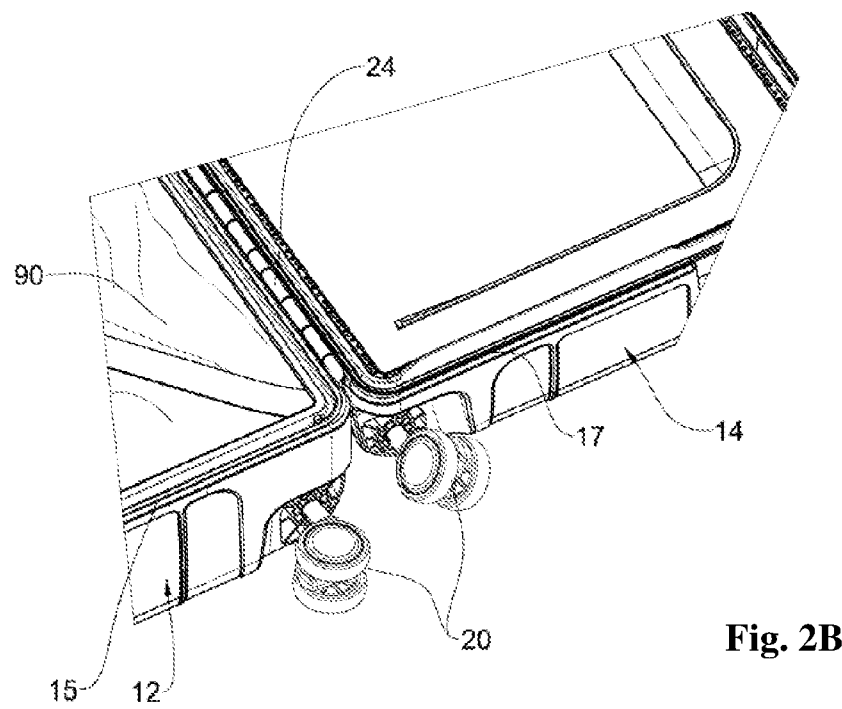
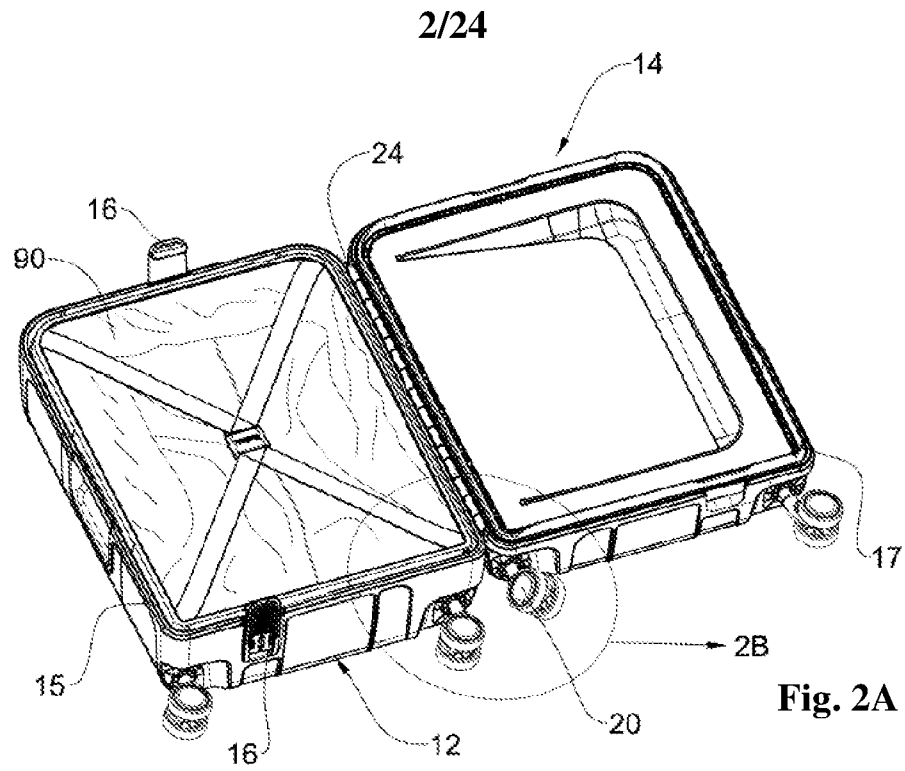


Fig. 1



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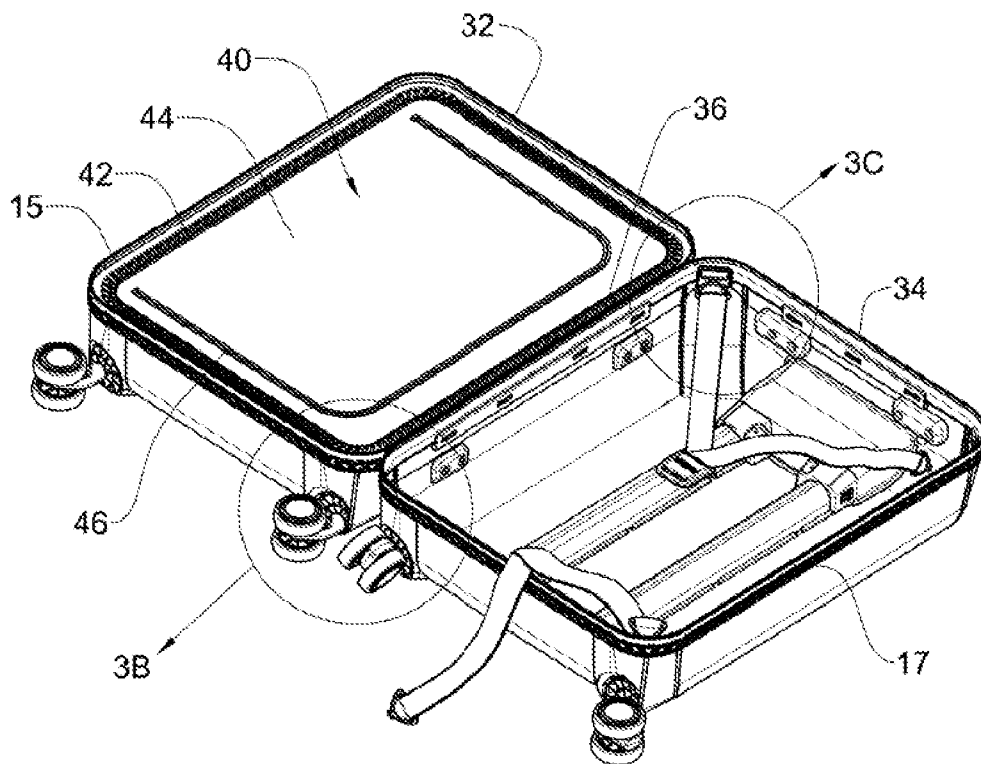


Fig. 3A

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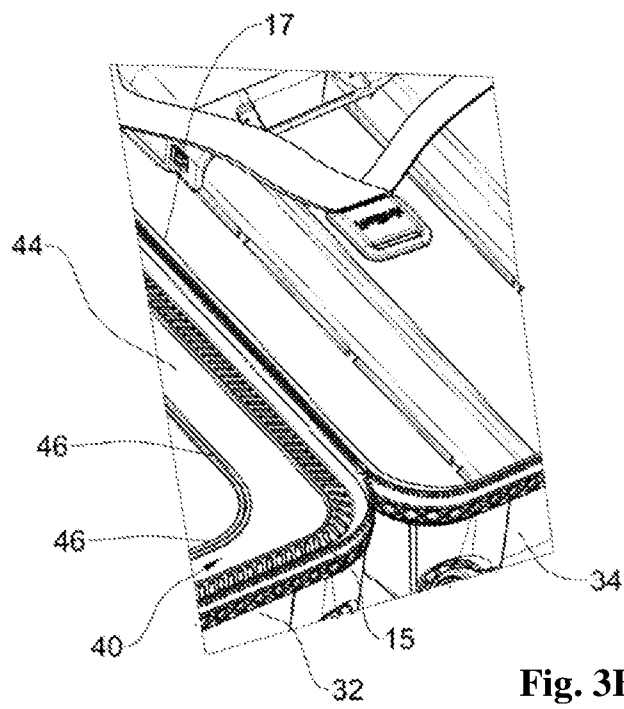


Fig. 3B

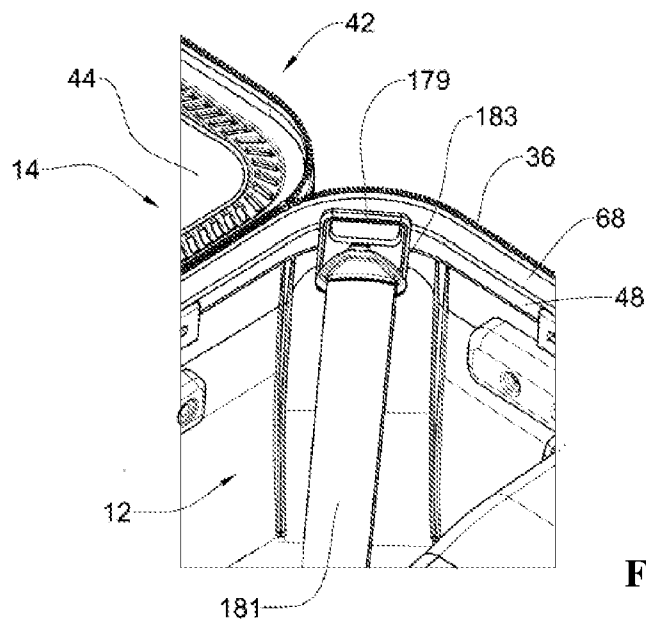


Fig. 3C

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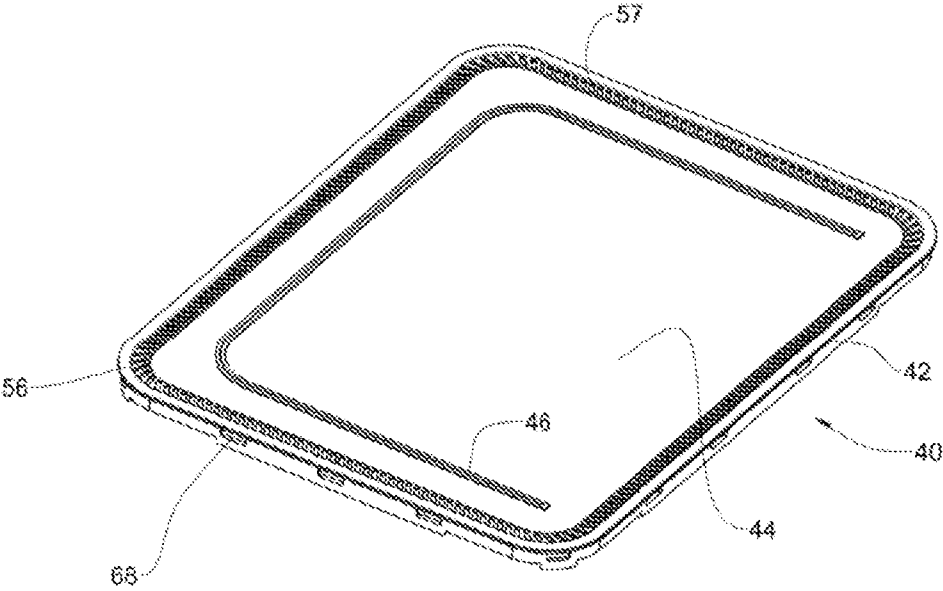


Fig. 4

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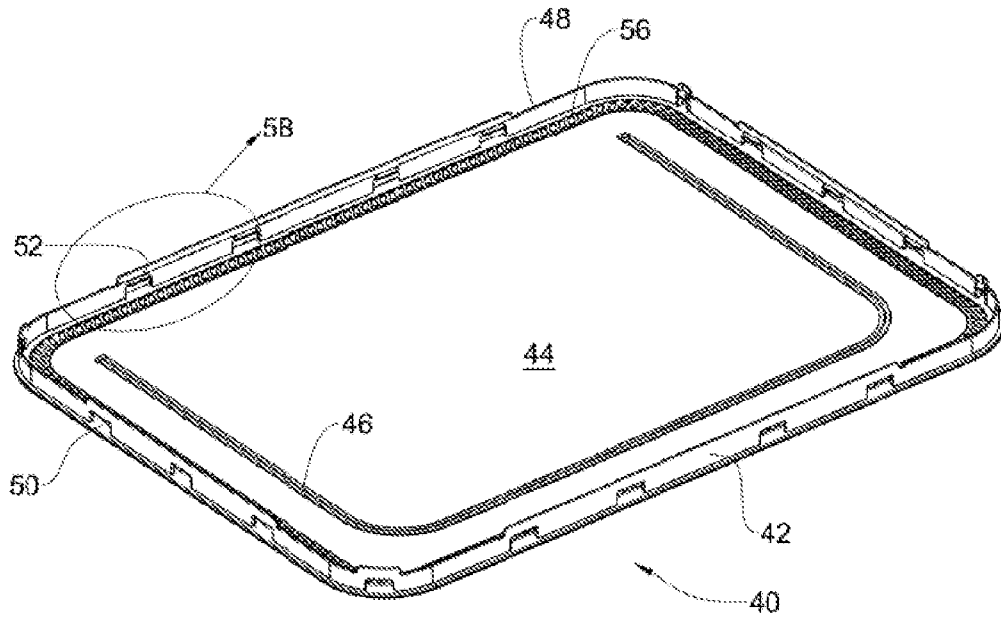


Fig. 5A

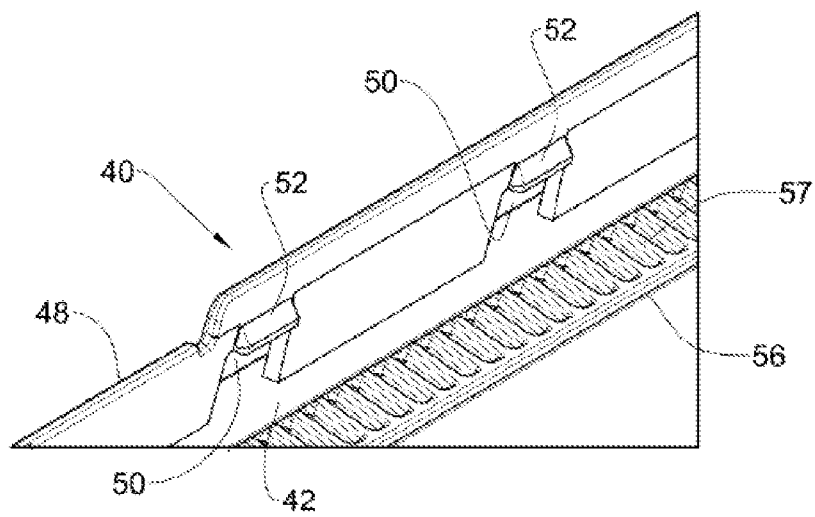


Fig. 5B

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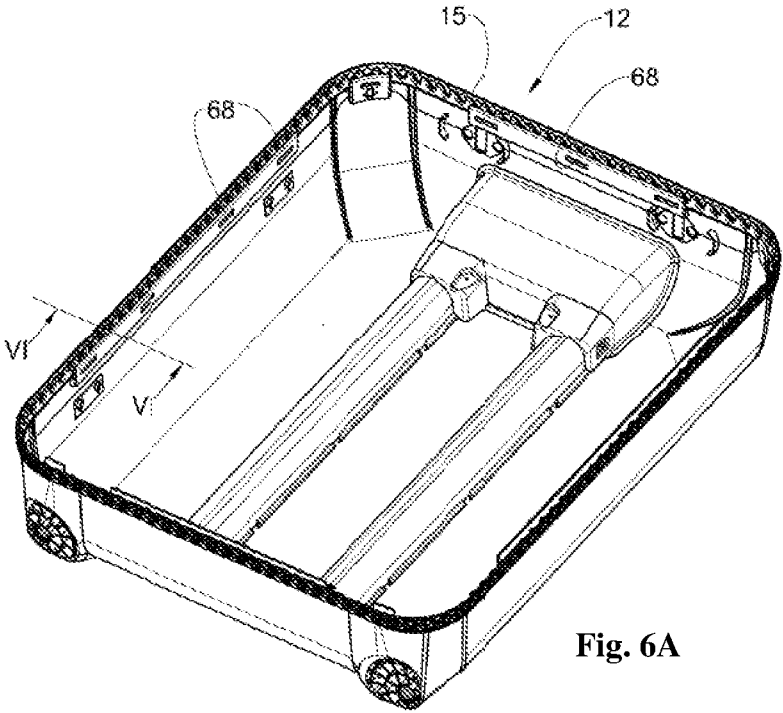


Fig. 6A

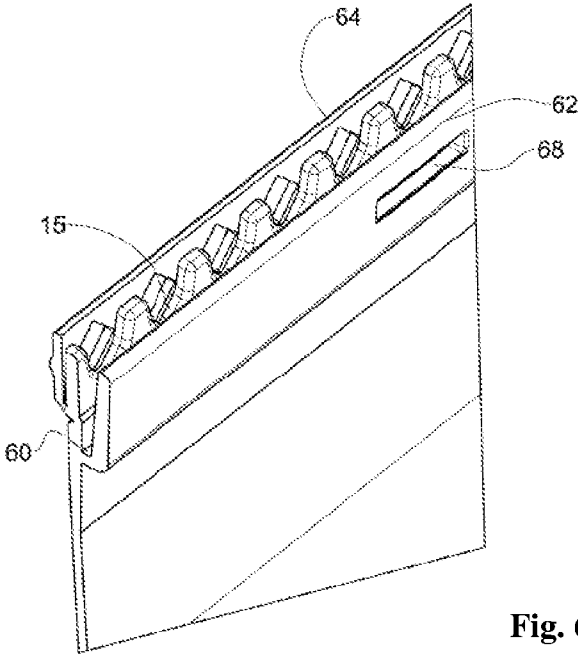


Fig. 6B

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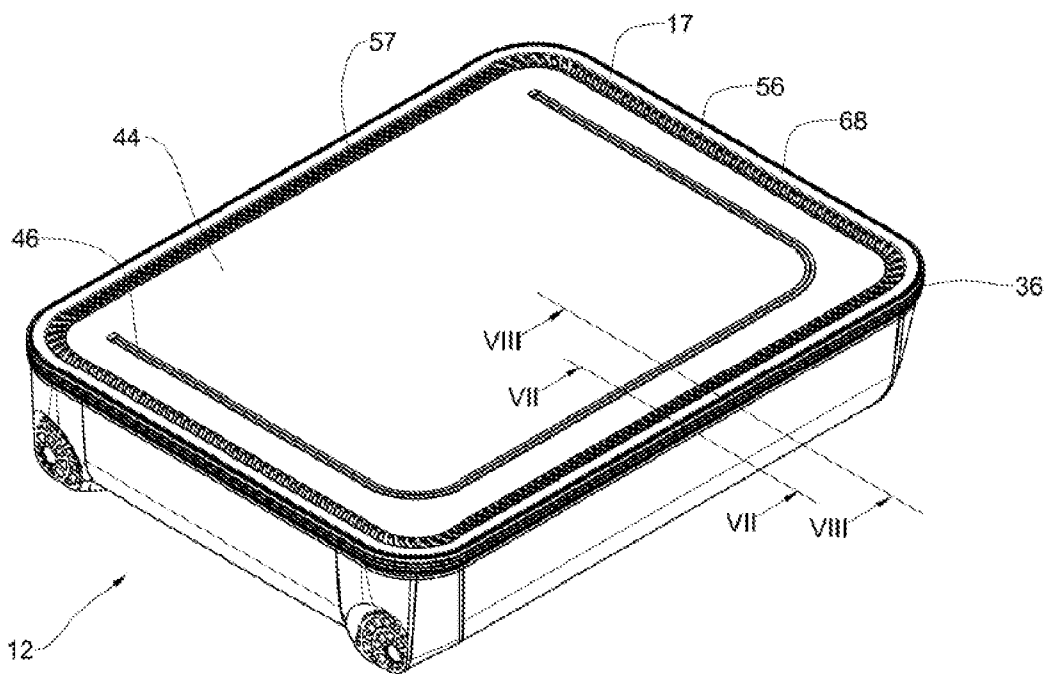


Fig. 7A

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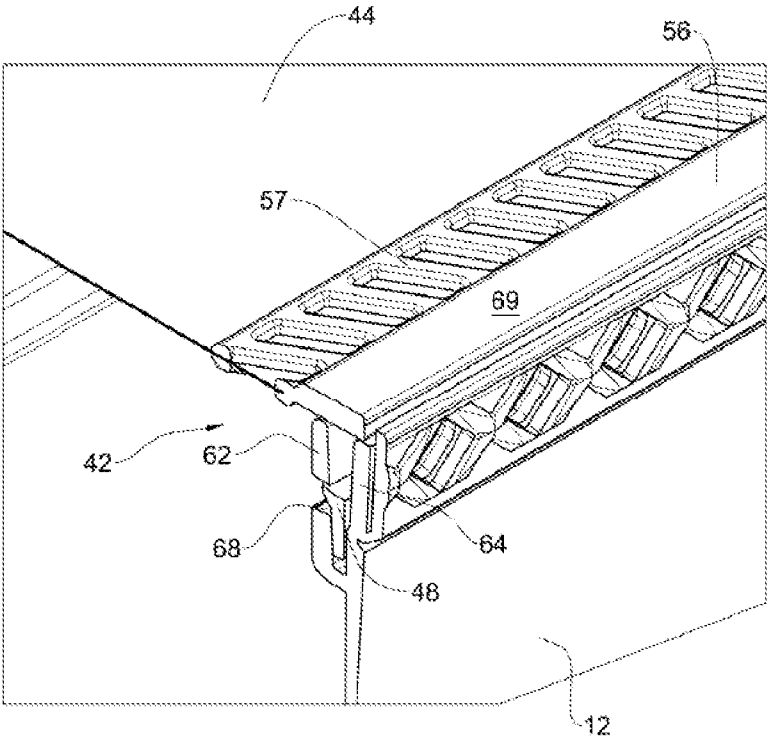


Fig. 7B

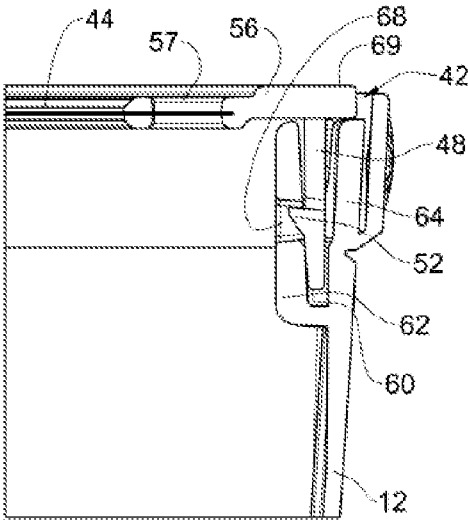


Fig. 7C

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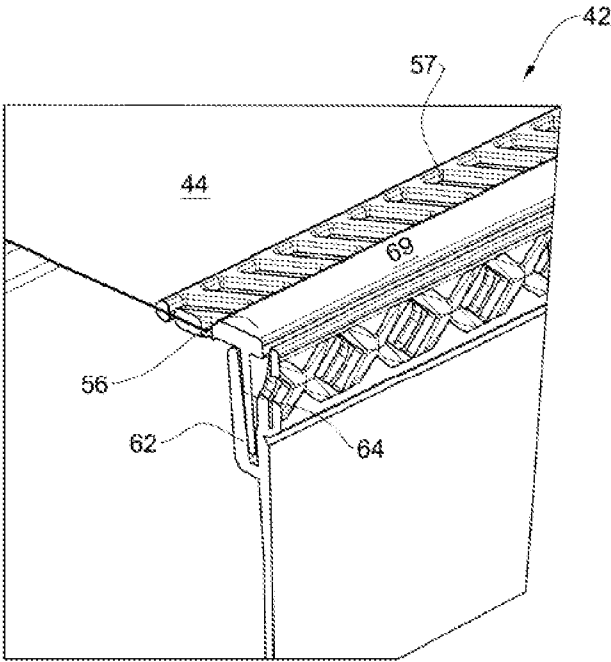


Fig. 7D

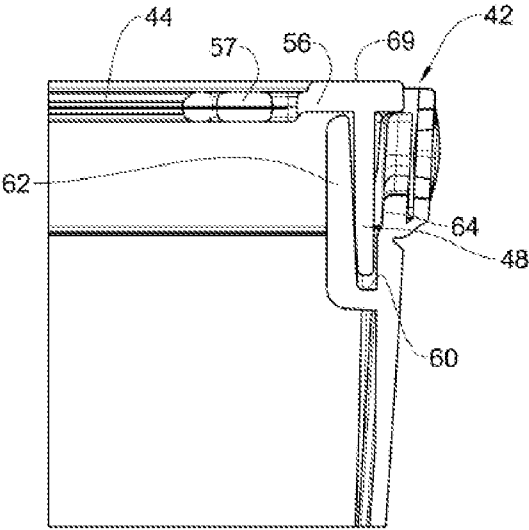


Fig. 7E

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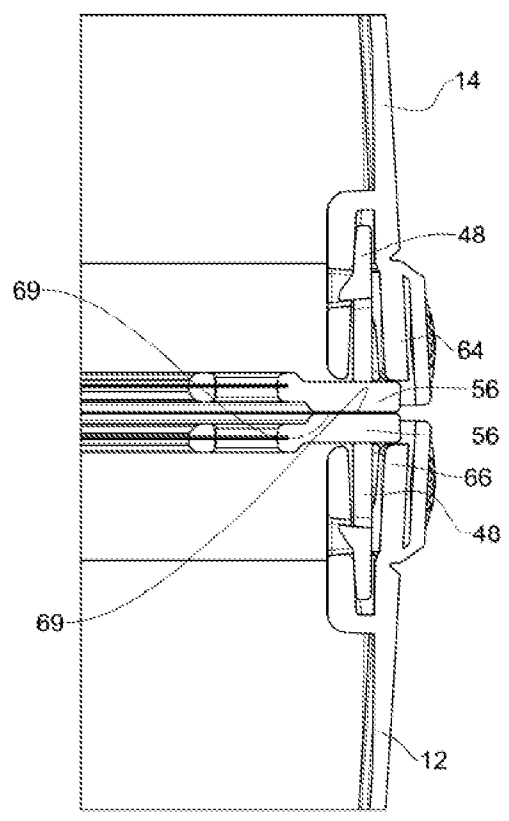


Fig. 7F

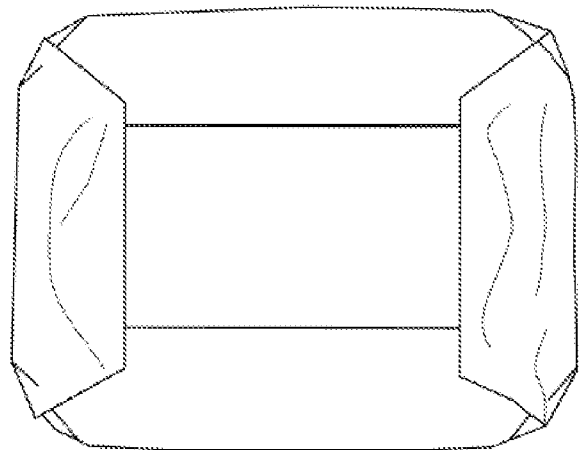


Fig. 8

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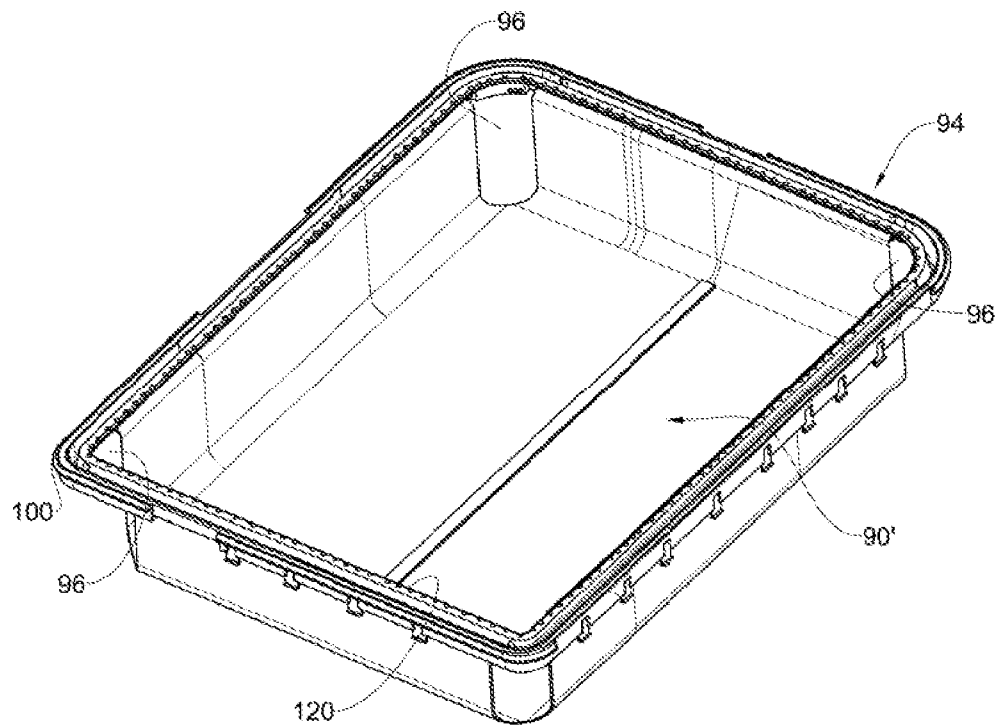


Fig. 9A

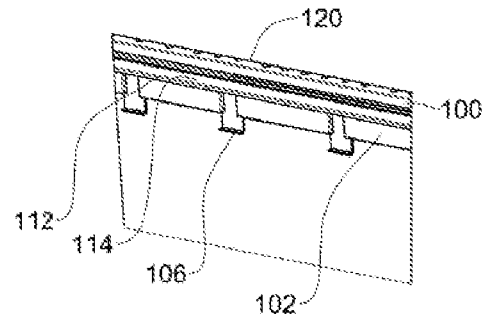


Fig. 9B

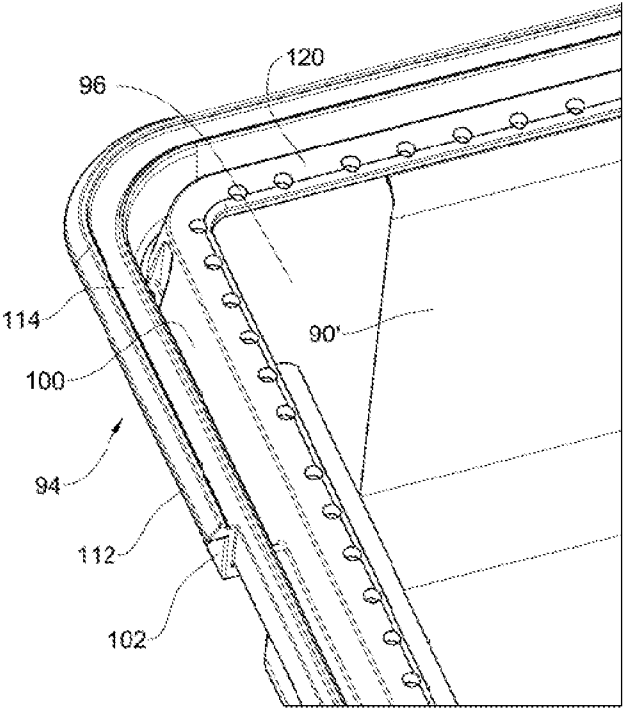


Fig. 9C

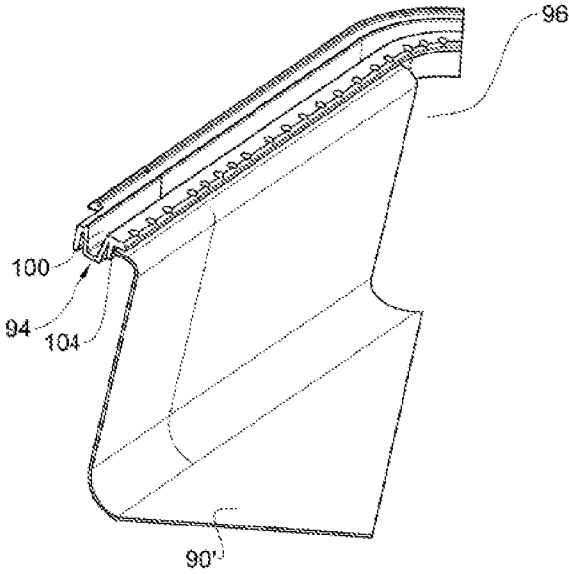


Fig. 9D

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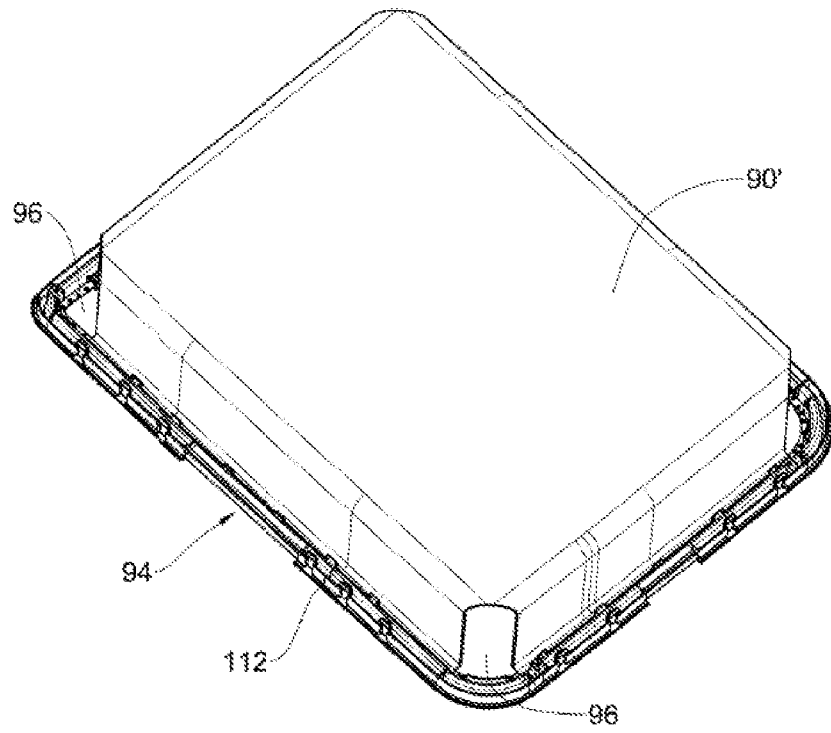


Fig. 9E

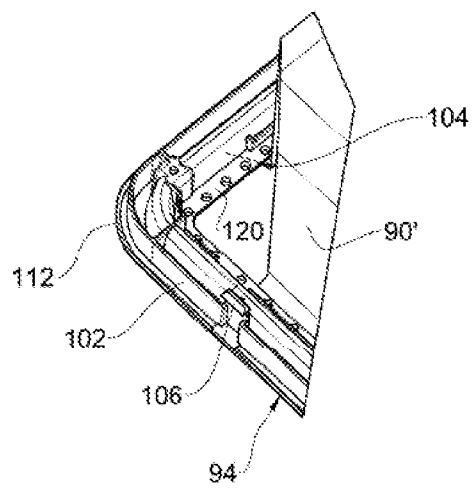


Fig. 9F

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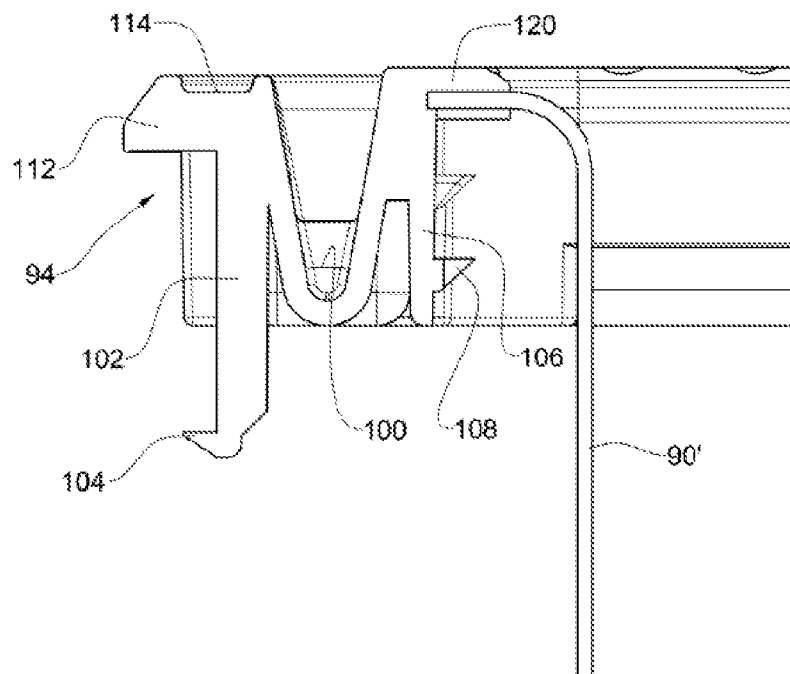
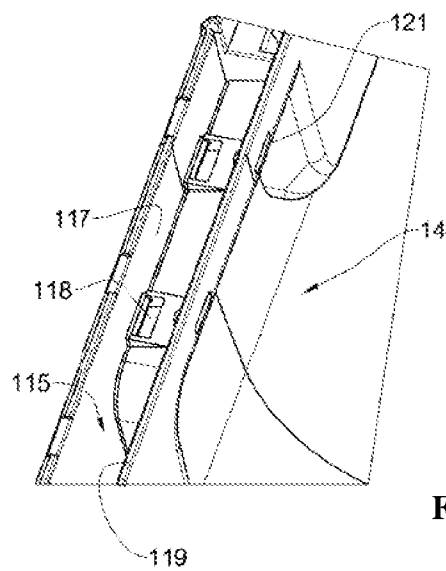
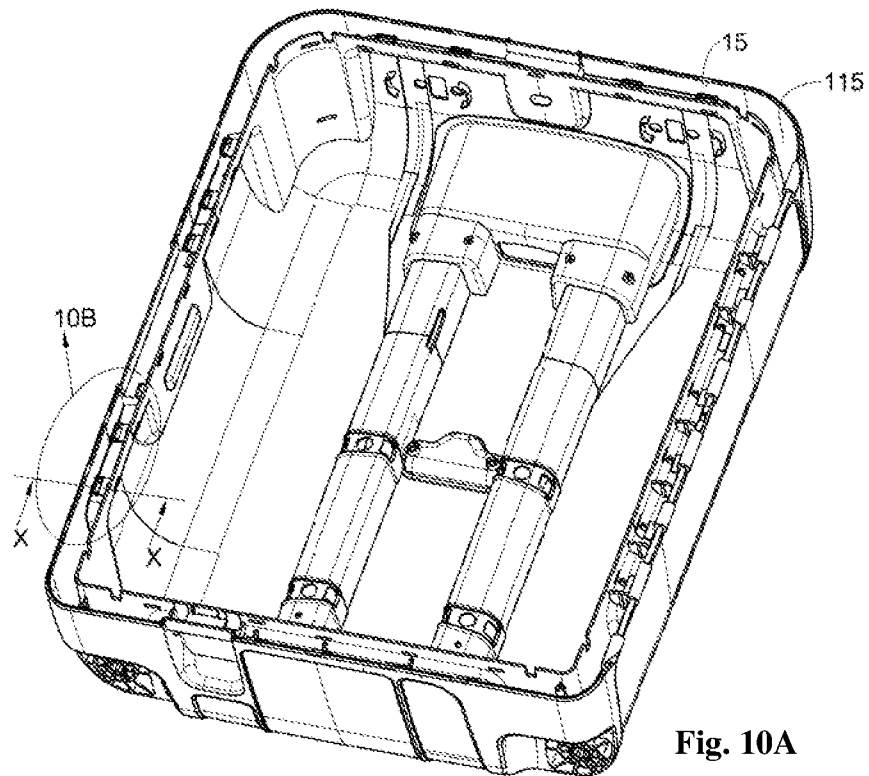


Fig. 9G

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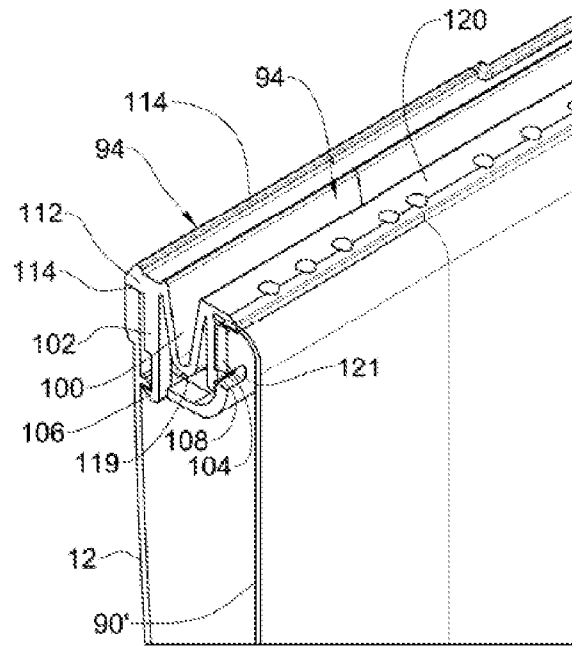


Fig. 11A

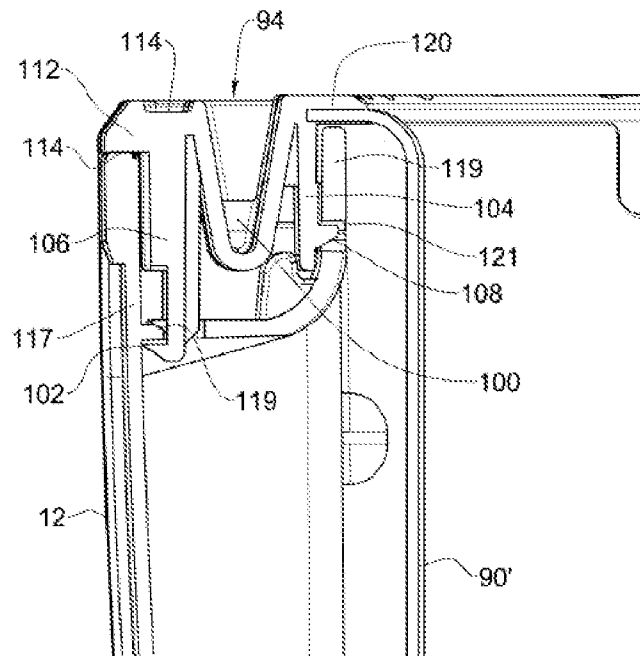


Fig. 11B

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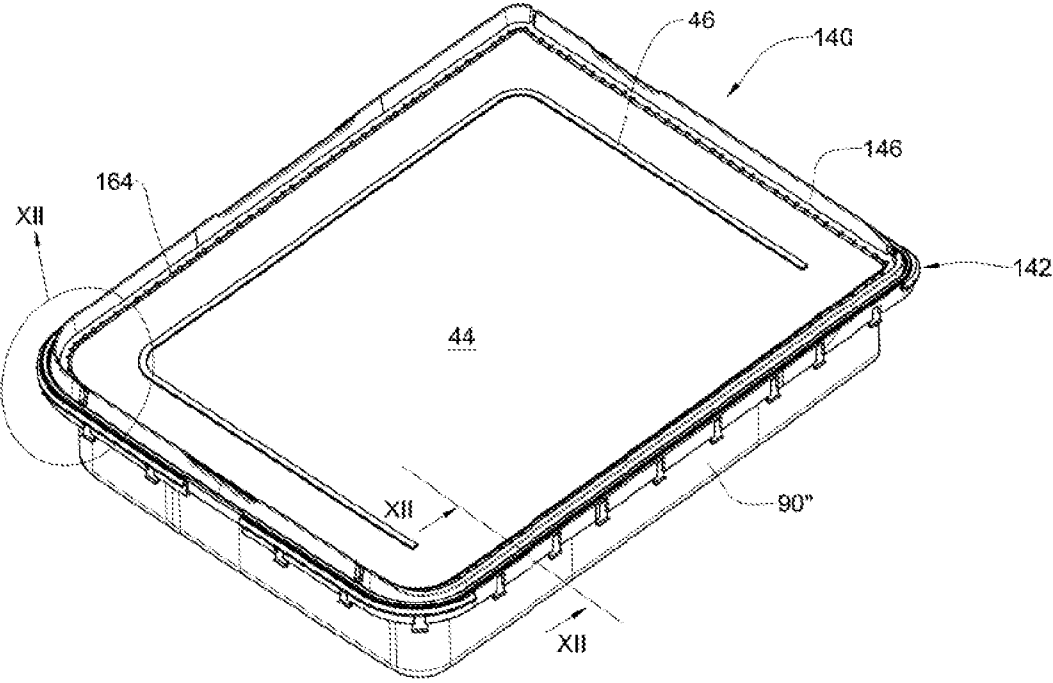


Fig. 12A

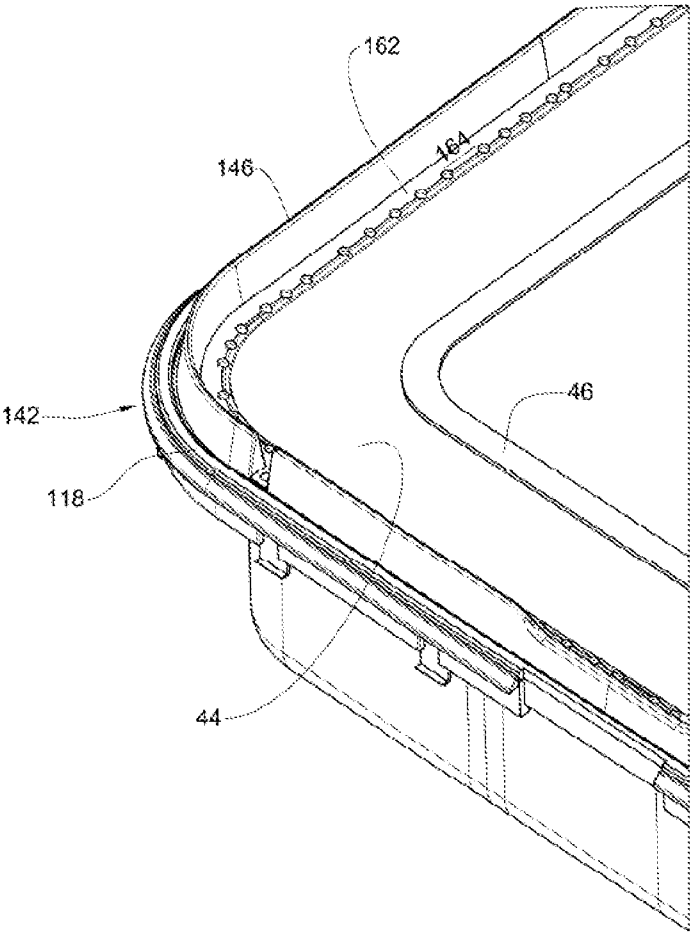


Fig. 12B

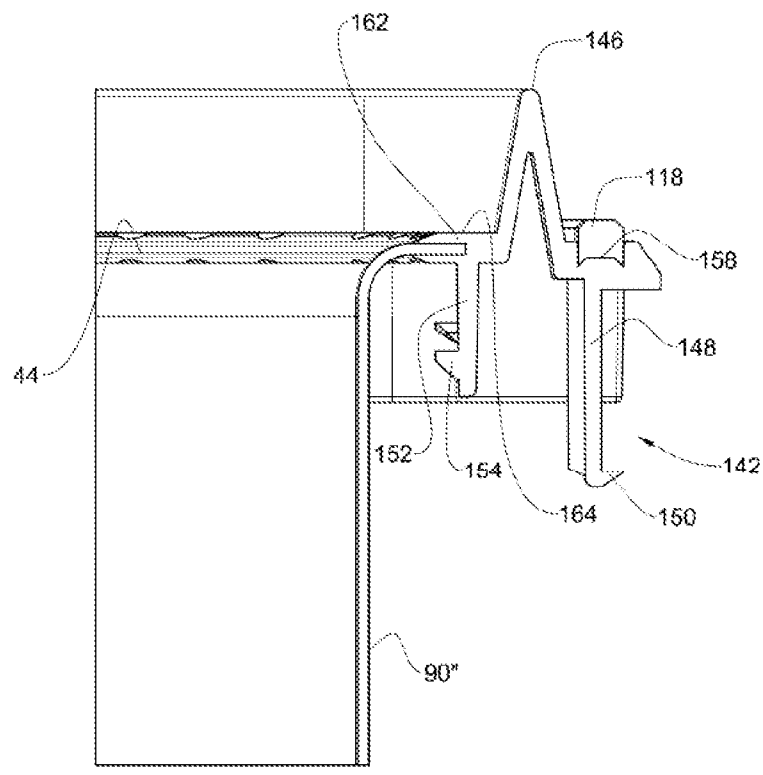


Fig. 12C

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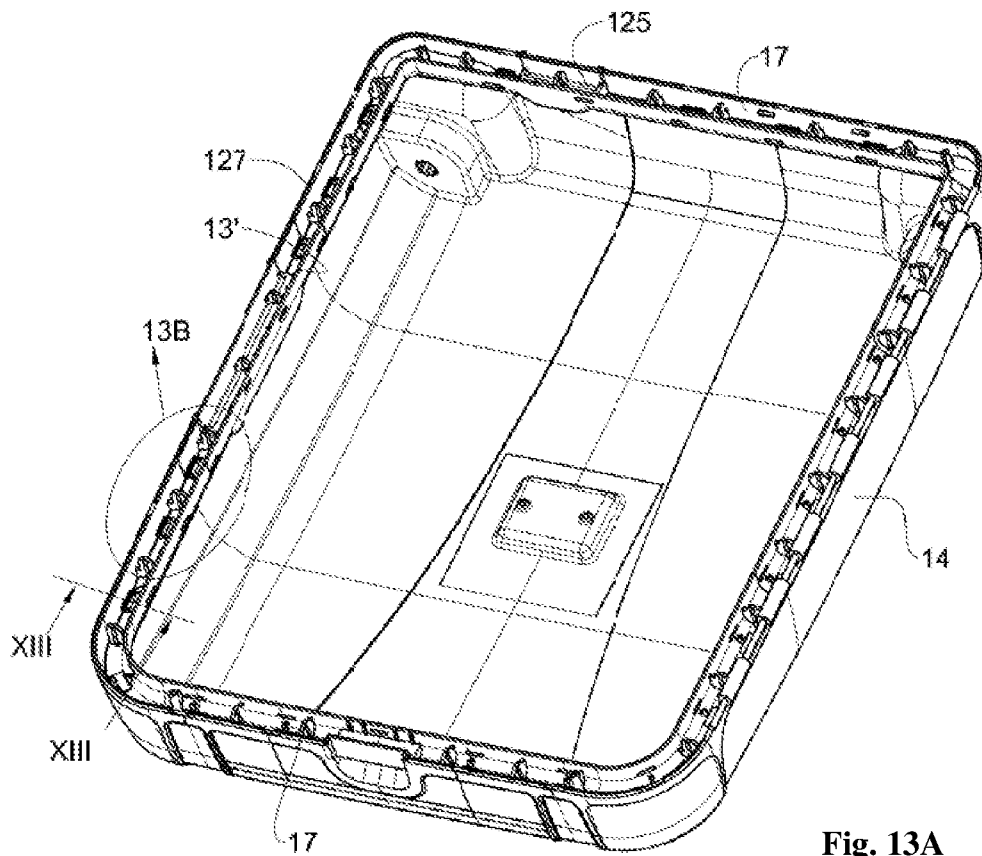


Fig. 13A

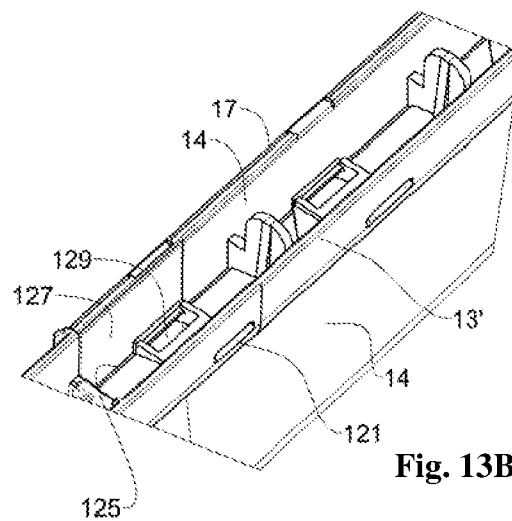


Fig. 13B

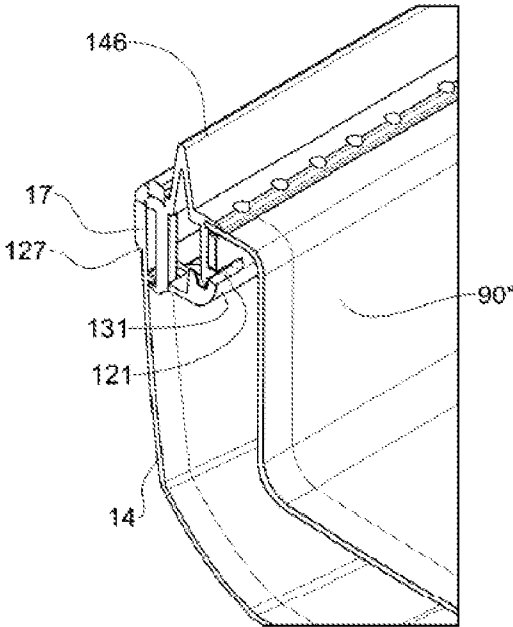


Fig. 14A

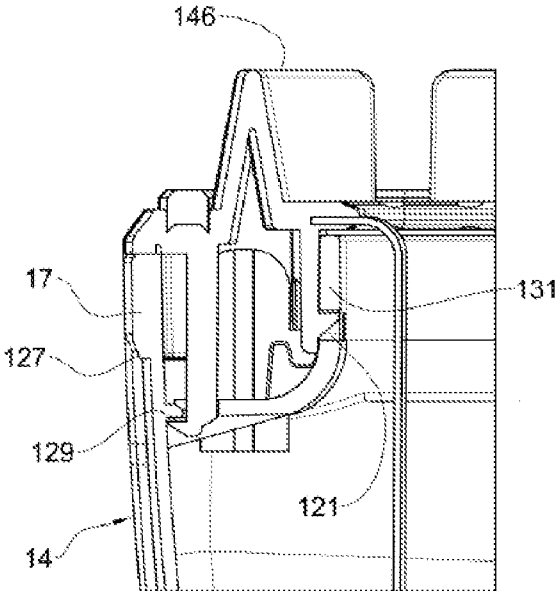


Fig. 14B

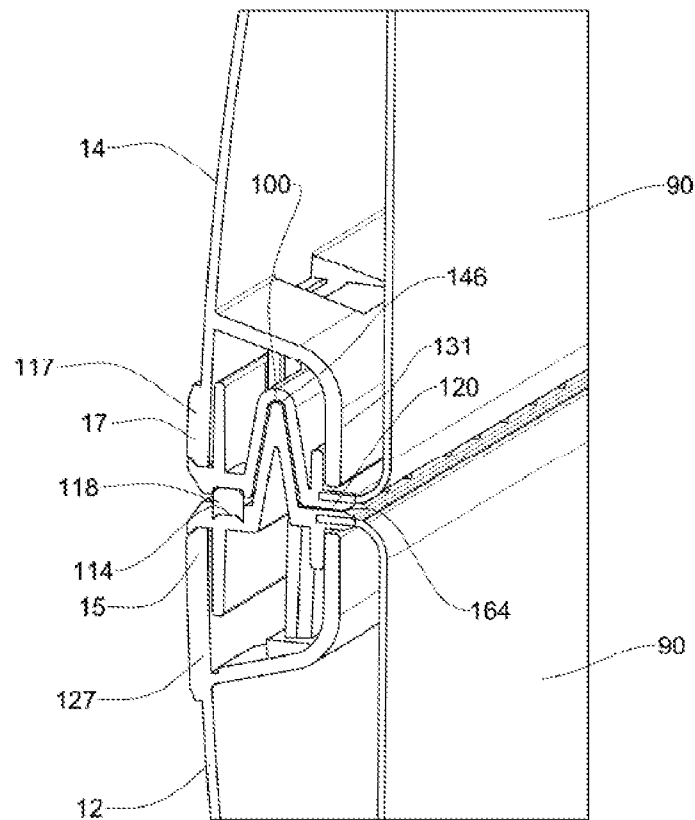


Fig. 15A

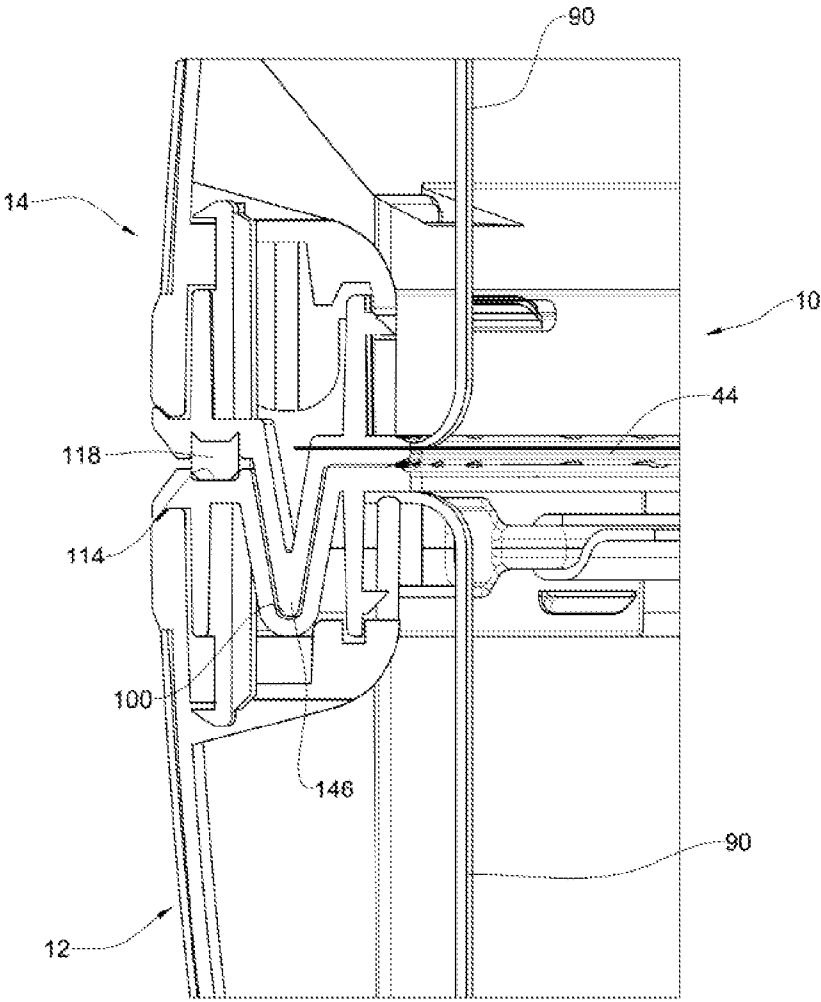


Fig. 15B

INTERNATIONAL SEARCH REPORT

International application No
PCT/IL2017/050866

A. CLASSIFICATION OF SUBJECT MATTER
INV. A45C5/03 A45C13/02
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)
A45C

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, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 073 738 A (ABRAHAM J RICHARD [US] ET AL) 13 June 2000 (2000-06-13) cited in the application column 3, line 47 - column 6, line 10; figures 1,2,6	1-7,13, 15,16, 18,19
X	WO 2012/107389 A1 (VALIGERIA RONCATO SPA [IT]; RONCATO ENRICO [IT]) 16 August 2012 (2012-08-16) page 3, line 5 - page 4, line 23; figures 1-6	1,3,4,7, 8,12
X	US 2007/194543 A1 (DUVIGNEAU NIKOLAI [IL]) 23 August 2007 (2007-08-23) figures 4A, 4B, 5, 6 ----- -/-	1-3, 7-11,14, 17-20



Further documents are listed in the continuation of Box C.



See patent family annex.

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Date of the actual completion of the international search

28 September 2017

Date of mailing of the international search report

09/10/2017

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European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040,
Fax: (+31-70) 340-3016

Authorized officer

Fidalgo Marron, B

INTERNATIONAL SEARCH REPORT

International application No
PCT/IL2017/050866

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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X	US 2002/126920 A1 (MOGIL MELVIN S [CA]) 12 September 2002 (2002-09-12) paragraphs [0056] - [0072]; figures 1-3 -----	21
X	US 2003/024960 A1 (GREENSTEIN MARK JOSEPH [CA] ET AL) 6 February 2003 (2003-02-06) paragraph [0075]; figure 2 -----	21

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International application No

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