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(72) Inventors:
• **CORAZZA, Federico**
66020 San Giovanni Teatino (Chieti) (IT)
• **ZIROLLO, Angelo**
66020 San Giovanni Teatino (Chieti) (IT)
• **DI PIETRO, Danilo**
66020 San Giovanni Teatino (Chieti) (IT)

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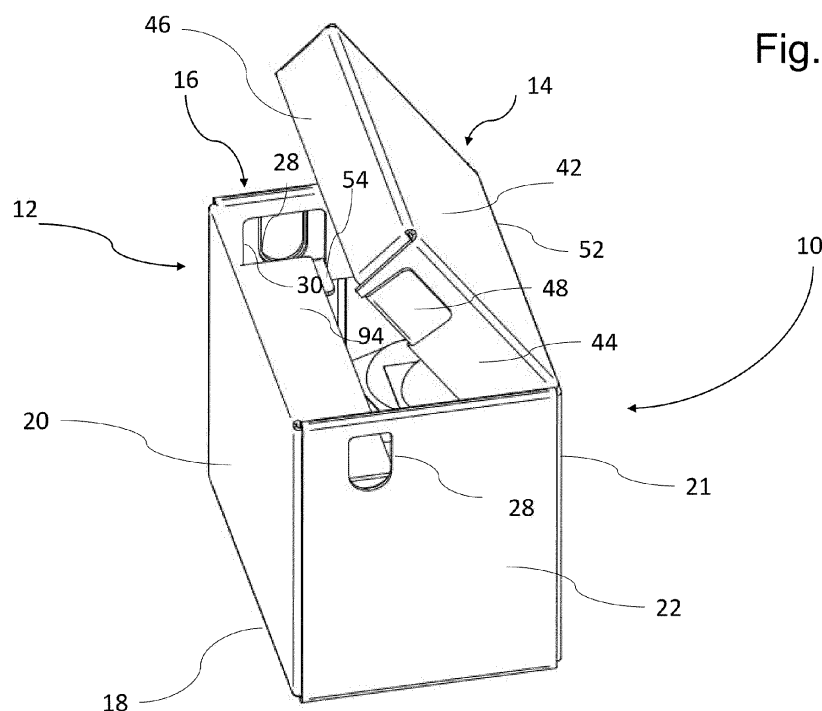
(74) Representative: **Buzzi, Notaro & Antonielli d'Oulx
S.p.A.**
Corso Vittorio Emanuele II, 6
10123 Torino (IT)

(71) Applicant: **Fameccanica.Data S.p.A.**
66020 San Giovanni Teatino (CH) (IT)

(54) **CHILD-PROOF PAPER OR CARDBOARD CONTAINER, BLANK THEREFOR AND CONSUMER PRODUCT THEREWITH**

(57) A paper or cardboard container, comprising a container body (12) and a cover (14) movable between an open configuration and a closed configuration, wherein the cover (14) has a pair of sides (44) having respective engagement tabs (48), which engage respective through-windows (30) of the side walls (22) of the con-

tainer body (12), and wherein a front wall (20) of the container body (12) has a folded distal portion (90) having a base flap (92) folded against an inner surface of the front wall (20) and a stiffening flap (94) arranged at a lower end of the base flap (92) and folded towards the inside of the container.

**Fig. 2**

Description

Field of the invention

[0001] The present invention refers to containers, in particular to containers for household products.

[0002] The invention was developed in particular for its application to containers for laundry and dishwasher detergent capsules.

[0003] Although specific reference is made below to this specific field of use, it is understood that the invention is not limited to containers for detergent capsules.

Prior Art

[0004] Laundry and dishwasher detergent capsules are water-soluble pouches containing highly concentrated laundry detergents, fabric softeners and other laundry products. Detergent capsules are becoming increasingly popular given the ease of use for the user and the positive impact on sustainability, as they are a way of reducing waste of liquid and powder detergent by having precise doses for a load.

[0005] Concern has been raised about the accidental exposure of children to laundry or dishwasher capsules, as a result of their elaborate, multi-colored design, which makes them resemble sweets, and the risk that children may confuse them as such.

[0006] In light of the dangers arising from the ingestion of capsules by children, packaging manufacturers have worked hard to develop child-proof containers, the introduction of which has reduced the incidence of accidental ingestion of potentially dangerous substances by children under the age of 5.

[0007] Given the increasingly frequent use of this type of packaging, it was necessary to define its characteristics and related testing methods in order to provide adequate guarantees and avoid confusion and misunderstandings in a sector of great importance for the safety of children.

[0008] To respond to this need, UNI has published the UNI EN ISO 8317:2005 regulation "Child-resistant packaging - Requirements and test procedures for reclosable packaging". This regulation establishes the characteristics that reclosable packages must have before being placed on the market (in particular for solvents, household hygiene products, highly acidic or alkaline preparations, substances used for gardening, etc.).

[0009] Childproof containers, if tested according to the regulations, must provide a satisfactory degree of resistance to opening by children but - at the same time - a sufficient level of accessibility to the contents by adults.

[0010] Test procedures should therefore be carried out in two steps: a step with children and a step with adults. The test with children takes place in the presence of a supervisor and in an environment that is familiar to them: a group of no more than 200 children aged between 42 and 51 months is formed. Children must be selected so

as to represent as faithfully as possible the different social, ethnic and cultural origins of the population as a whole, and not just the area wherein the test takes place. Each pair of children is given a number of packages to open by whatever means they wish to use. They have 10 minutes: if they cannot open or access the contents of the product in the first 5 minutes of the test, they must watch a single demonstration of opening the package by an adult; after which they have another 5 minutes to try to open the package.

[0011] The package is considered compliant if:

- at least 85% of children failed to open the package within the first 5 minutes, and
- at least 80% of children were unable to open the package within the 5 minutes following the demonstration.

[0012] The vast majority of detergent capsule containers currently on the market are made of plastic materials, due to the need to equip the containers with elastic snap-engagement formations and locking elements necessary to ensure compliance with child-proof requirements.

[0013] To limit the use of plastic packaging it would be desirable to create child-proof containers made of paper or cardboard. However, it is very difficult to create reclosable paper or cardboard containers that meet the requirements of child-proof standards.

[0014] EP-A-3778411 describes a consumer product comprising a container having a container body closed by a cover having side walls arranged externally with respect to corresponding outer walls of the container body.

[0015] EP-A-4071073 by the same applicant describes a child-proof paper or cardboard container, comprising a container body having an opening and a cover applied in an openable manner to the opening, wherein the container body comprises a bottom wall, a pair of front walls and a pair of side walls, wherein each of the side walls comprises an outer layer having a through-hole and an inner layer having a through-window facing the through-hole of the outer layer, wherein the movable cover comprises a top wall and a pair of sides, each of which has an engagement tab on a respective outer surface, wherein in a closed configuration the engagement tabs of the sides of the cover engage in respective through-windows of the side walls of the body, and retain the cover on the body of the container. A user may release the cover from the container body by inserting a finger into each of the through-holes and pressing inwards on the engagement tabs.

[0016] The solution described in EP-A-4071073 has proven to be effective in passing the tests required by the standards for child-proof containers when the body of the container has relatively small dimensions, for example, with a capacity of 16-20 capsules.

[0017] However, the solution described in EP-A-4071073 has proven to have difficulties in passing the tests required by the standards for child-proof con-

tainers when the containers have large dimensions, for example, with a capacity exceeding 40 capsules. In fact, in large containers the front side of the container body is relatively flexible, and during the tests it was observed that children can deform the front wall and insert their hands into the gap formed between the cover and the upper edge of the front wall of the container body and can access the contents even with the cover closed, or they can tear the front wall of the container opening.

Object and summary of the invention

[0018] The object of the present invention is to provide an eco-sustainable container that has greater resistance to opening by children even in large-dimensioned formats.

[0019] According to the present invention, this object is achieved by a container according to claim 1.

[0020] According to another aspect, the invention relates to a paper or cardboard blank for creating child-proof containers according to claim 9.

[0021] According to another aspect, the invention relates to a consumer product comprising a child-proof paper or cardboard container containing a plurality of water-soluble single-dose articles according to claim 10.

Brief description of the drawings

[0022] The present invention will now be described in detail with reference to the attached drawings, given purely by way of non-limiting example, wherein:

- Figure 1 is a perspective view of a first embodiment of a container according to the present invention, in a closed configuration,
- Figure 2 is a perspective view of the container of Figure 1 in an open configuration,
- Figure 3 is a cross-section along the line III-III of Figure 1,
- Figure 4 is a cross-section along the line IV-IV of Figure 1,
- Figure 5 is a plan view of a paper or cardboard blank used to make the container of Figures 1 and 2,
- Figure 6 is a perspective view of a second embodiment of a container according to the present invention, in an open configuration,
- Figure 7 is a perspective view showing a variant of the container of Figure 6,
- Figure 8 is a partial perspective view of a third embodiment of a container according to the present invention, in an open configuration,
- Figure 9 is a front cross-section of the container of Figure 8,
- Figure 10 is a perspective view showing a variant of the container of Figure 8,
- Figure 11 is a cross-section of the part indicated by the arrow XI in Figure 10,
- Figure 12 is a partial perspective view of a fourth

embodiment of a container according to the present invention, in an open configuration,

- Figure 13 is a partial perspective view from a different angle of the container of Figure 12,
- Figure 14 is a partial perspective view of a further variant of a container according to the present invention.

[0023] It will be appreciated that the attached drawings are schematic and that the different figures may not be shown to the same scale. Also, in various figures, some elements may not be shown to better show other elements.

Detailed description

[0024] Figures 1 and 2 illustrate a consumer product comprising a paper or cardboard container 10 containing a plurality of water-soluble single-dose articles.

[0025] The paper or cardboard container 10 comprises a container body 12 and a cover 14. The container body 12 has an opening 16, and the cover 14 is removably applied to the opening 16 and is movable between a closed configuration shown in Figure 1 and an open configuration shown in Figure 2.

[0026] The container body 12 comprises a bottom wall 18 opposite the opening 16, a front wall 20, a rear wall 21, and two side walls 22. The front wall 20 and the rear wall 21 are parallel to each other and perpendicular to the bottom wall 18. The two side walls 22 are parallel to each other and perpendicular to the bottom wall 18 and to the front walls 20, 21. The front wall 20, the rear wall 21 and the side walls 22 have respective upper edges that define the opening 16.

[0027] In possible embodiments, the container body 12 could have a trapezoidal cross-section, in the most general sense a scalene trapezium shape.

[0028] The cover 14 comprises an upper wall 42, a pair of sides 44 parallel to each other and perpendicular to the upper wall 42 and a front side 46. The front side 46 is perpendicular to the sides 44 and is inclined with respect to the upper wall 42. The front side 46 may have folded side portions 50 that can be fixed, for example, by means of glue, to respective sides 44.

[0029] The cover 14 is hinged to the container body 12 along a hinge line 52 which extends along an upper side of the rear wall 21 of the container body 12.

[0030] With reference to Figure 5, the cover 14 and the container body 12 are made starting from a single flat blank of paper or cardboard 120 by folding the blank 120 along folding lines indicated in Figure 5 with dashed and dotted lines. The container 10 is entirely made of paper or cardboard and can be recycled as paper waste without the need to remove any plastic part.

[0031] With reference to Figures 4 and 5, each of the side walls 22 comprises an outer layer 24 having a through-hole 28, and an inner layer 26 having a through-window 30 facing the through-hole 28 of the

outer layer 24.

[0032] The inner layer 26 of each of the side walls 22 may be formed by a distal portion of the respective side wall 22 folded around a fold line passing through the upper edge of the side wall 22.

[0033] In possible embodiments, each side wall 22 may have an intermediate layer which can be formed by portions 32, 34 folded with respect to the respective front walls 20, 21.

[0034] Again with reference to Figures 4 and 5, each of the sides 44 of the cover 14 has an engagement tab 48 folded onto a respective outer surface. The engagement tabs 48 may be fixed, for example, by glue, to the respective outer surfaces of the sides 44 of the cover 14 or they can be free, i.e. not fixed to the respective outer surfaces of the sides 44.

[0035] In the closed configuration of the container 10, the engagement tabs 48 of the sides 44 of the cover 14 engage with respective through-windows 30 of the side walls 22 of the container body 12 and hold the cover 14 on the container body 12.

[0036] A user may release the cover 14 from the container body 12 by inserting a finger into each of the through-holes 28 and pressing inwards on the engagement tabs 48. After having disengaged the cover 14 from the container body 12, the user can lift the cover 14 by swinging it around the hinge axis 52.

[0037] The operations necessary to remove the cover 14 are sufficiently complex to ensure that the paper or cardboard container 10 is child-proof.

[0038] Referring to Figures 3 and 5, the front wall 20 of the container body has a folded distal portion 90 having a base flap 92 folded against an inner surface of the front wall 20, and a stiffening flap 94 arranged at a lower end of the base flap 92 and folded towards the inside of the container.

[0039] The base flap 92 is folded relative to the front wall 20 around a fold line passing through the upper edge of the front wall 20. The base flap 92 is in contact with the inner surface of the front wall 20 and may be fixed, for example, by glue, to the inner surface of the front wall 20.

[0040] The stiffening flap 94 is folded with respect to the base flap 92 around a fold line passing through the lower end of the base flap 92.

[0041] The stiffening flap 94 is inclined with respect to the front wall 20 by an angle between 20° and 160°. Preferably, the stiffening flap 94 is perpendicular to the front wall 20.

[0042] In possible embodiments, the stiffening flap 94 extends across the entire width of the front wall 20.

[0043] The stiffening flap 94 makes the front wall 20 more rigid, and makes it more difficult to bend the upper edge of the front wall towards the inside or outside of the container.

[0044] In the case of large containers, which have a front wall with a large width, the greater rigidity of the front wall 20 obtained thanks to the stiffening flap 94 considerably improves safety regarding the opening by children.

[0045] The stiffening flap 94 prevents contact with the products contained inside the container 10 in the event that in the configuration wherein the cover 14 is closed, children manage to insert their fingers between the upper edge of the front wall and the front side 46 of the cover 14.

[0046] In possible embodiments, the front side 46 of the cover 14 rests against the stiffening flap 94 in the closed configuration of the container. In this way, the stiffening flap 94 prevents the cover 14 from being pushed into the container body 12 beyond the position wherein the engagement tabs 48 are engaged in the respective through-windows 30.

[0047] With reference to Figures 4 and 5, in possible embodiments the inner layer 26 of each of the side walls 22 has a flap 54 folded perpendicularly to the inner layer 26 and extending along a lower edge of the through-window 30.

[0048] With reference to Figures 3 and 4, in one possible embodiment, the side portions of the stiffening flap 94 rest on respective flaps 54. The side portions of the stiffening flap 94 may be fixed, for example, by means of glue, to respective flaps 54.

[0049] With reference to Figure 6, in a possible embodiment, the stiffening flap 94 has side ends provided with notches 98 which engage the lower edges of respective through-windows 30 of the side walls 22.

[0050] With reference to Figure 7, in a possible embodiment the stiffening flap 94 has side ends provided with notches 98 which engage respective slots 100 formed in the side walls 22.

[0051] With reference to Figures 8 and 9, in possible embodiments, the stiffening flap 92 may have at least one wing 102, preferably a pair of wings 102, which rests against the inner surface of the front wall 20, and prevents downward oscillation of the stiffening flap 92. The at least one wing 102 may be formed by folded side portions of the stiffening flap 92. The at least one wing 102 may be parallel to the side walls 22 and may be fixed, for example, by means of glue, to a respective inner surface of a respective side wall 22.

[0052] With reference to Figures 10 and 11, in possible embodiments each of the wings 102 of the stiffening flap 92 has a notch 104 which engages a respective slot 106 formed in the front wall 20.

[0053] With reference to Figures 12 and 13, in possible embodiments, the stiffening flap 94 extends only for a part of the width of the front wall 20. The stiffening flap 94 may comprise at least two sections 96 spaced apart from each other. Each of the sections 96 of the stiffening flap 94 may be provided with a pair of wings 102 which rest against the inner surface of the front wall 20.

[0054] With reference to Figure 14, in possible embodiments, the stiffening flap 94 may have a turned-up edge 108 facing upwards, so that the stiffening flap substantially has a U-shaped cross-section which further increases the rigidity of the stiffening flap 94.

[0055] Of course, without prejudice to the principle of the invention, the details of construction and the embodi-

ments can be widely varied with respect to those described and illustrated, without thereby departing from the scope of the invention as defined by the claims that follow.

Claims

1. A paper or cardboard container, comprising:

- a container body (12) comprising a bottom wall (18), a front wall (20), a rear wall (21), and two side walls (22), wherein the front wall (20), the rear wall (21) and the side walls (22) have respective upper edges which define an opening (16) opposite the bottom wall (18), wherein each of said side walls (22) comprises an outer layer (24) having a through-hole (28) and an inner layer (26) having a through-window (30) facing the through-hole (28) of the outer layer (24), and
- a cover (14) movable between an open configuration and a closed configuration, wherein the cover (14) comprises an upper wall (42), a pair of sides (44) parallel to each other and perpendicular to the upper wall (42), wherein each of said sides (44) has an engagement tab (48) folded over a respective outer surface, wherein in said closed configuration the engagement tabs (48) of the sides (44) engage respective through-windows (30) of said side walls (22) and hold the cover (14) on the container body (12), and wherein a user can release the cover (14) from the container body (12) by inserting a finger into each of said through-holes (28) and pressing inwards on said engagement tabs (48),

characterized in that the front wall (20) has a folded distal portion (90) having a base flap (92) folded against an inner surface of the front wall (20) and a stiffening flap (94) arranged at a lower end of the base flap (92) and folded towards the inside of the container.

2. The container of claim 1, wherein the cover (14) has a front side (46) perpendicular to said sides (44), and wherein in said closed configuration a lower edge of said front side (46) rests against said stiffening flap (94).

3. The container of claim 1 or claim 2, wherein said stiffening flap (94) extends over the full width of the front wall (20).

4. The container of claim 1 or claim 2, wherein said stiffening flap (94) extends only for a part of the width of the front wall (20).

5. The container of claim 4, wherein said stiffening flap (94) comprises at least two sections (96) spaced apart from each other.

6. The container of any one of the preceding claims, wherein said stiffening flap (94) has side ends provided with notches (98) which engage lower edges of respective through-windows (30) of said side walls (22) or respective slots (100) formed in said side walls (22).

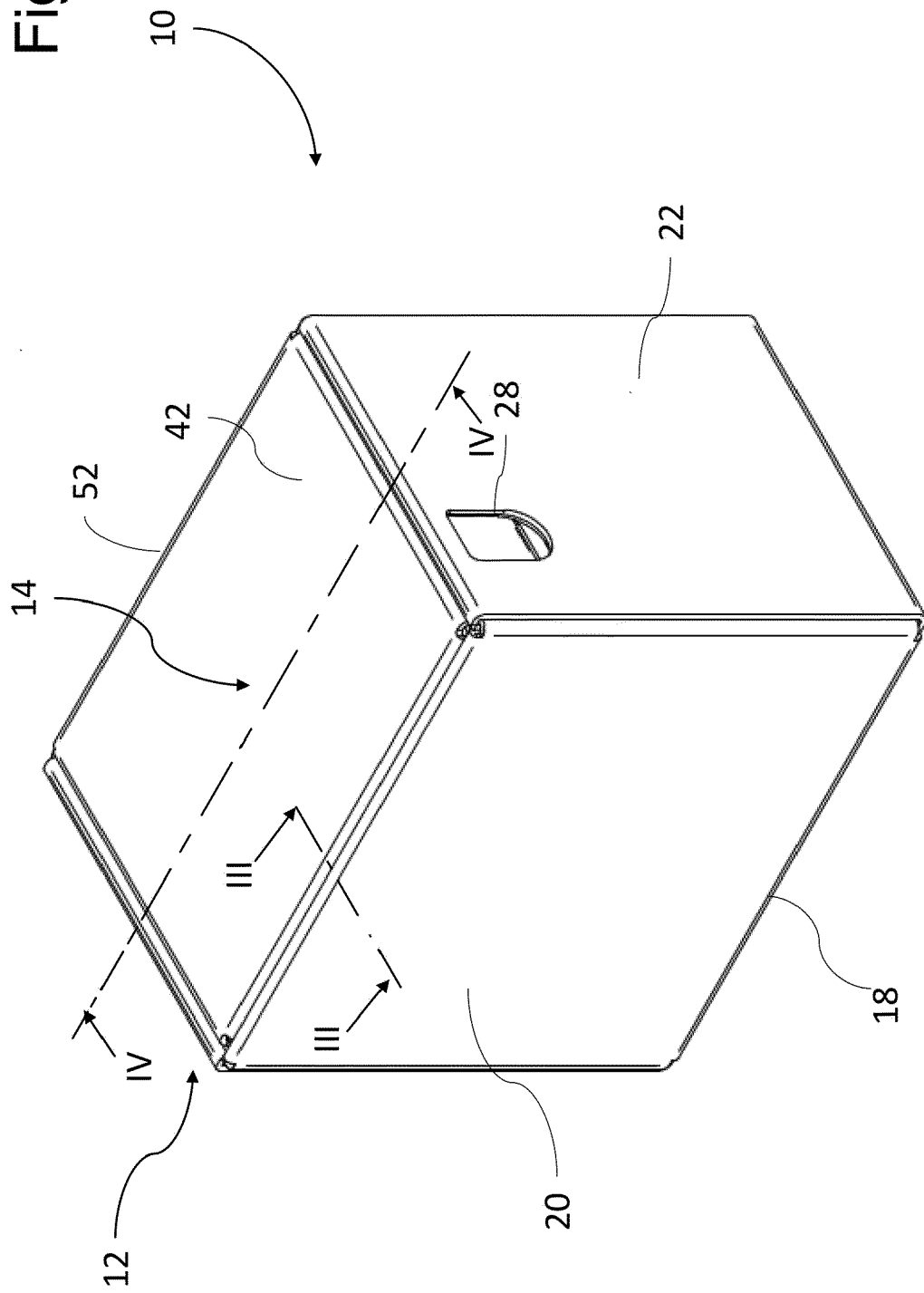
7. The container of any of the preceding claims, wherein said stiffening flap (92) has at least one wing (102) which rests against the inner surface of the front wall (20).

8. The container of claim 7, wherein said at least one wing (102) has a notch (104) which engages a respective slot (106) formed in the front wall (20).

9. A blank for making a paper or cardboard container (10) according to any of the preceding claims.

10. A consumer product comprising a paper or cardboard container (10) according to any of the preceding claims containing a plurality of water-soluble single-dose articles.

Fig. 1



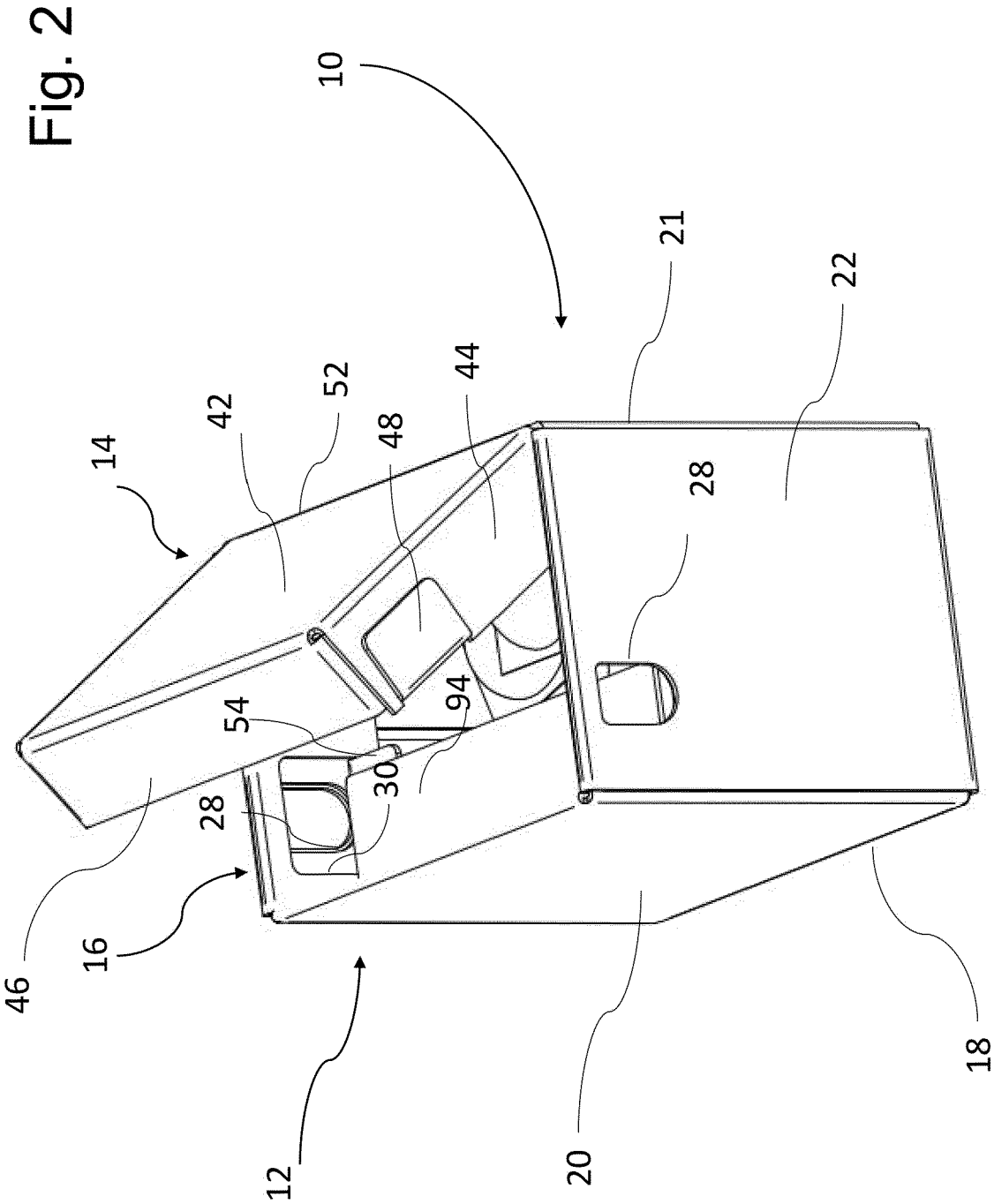


Fig. 3

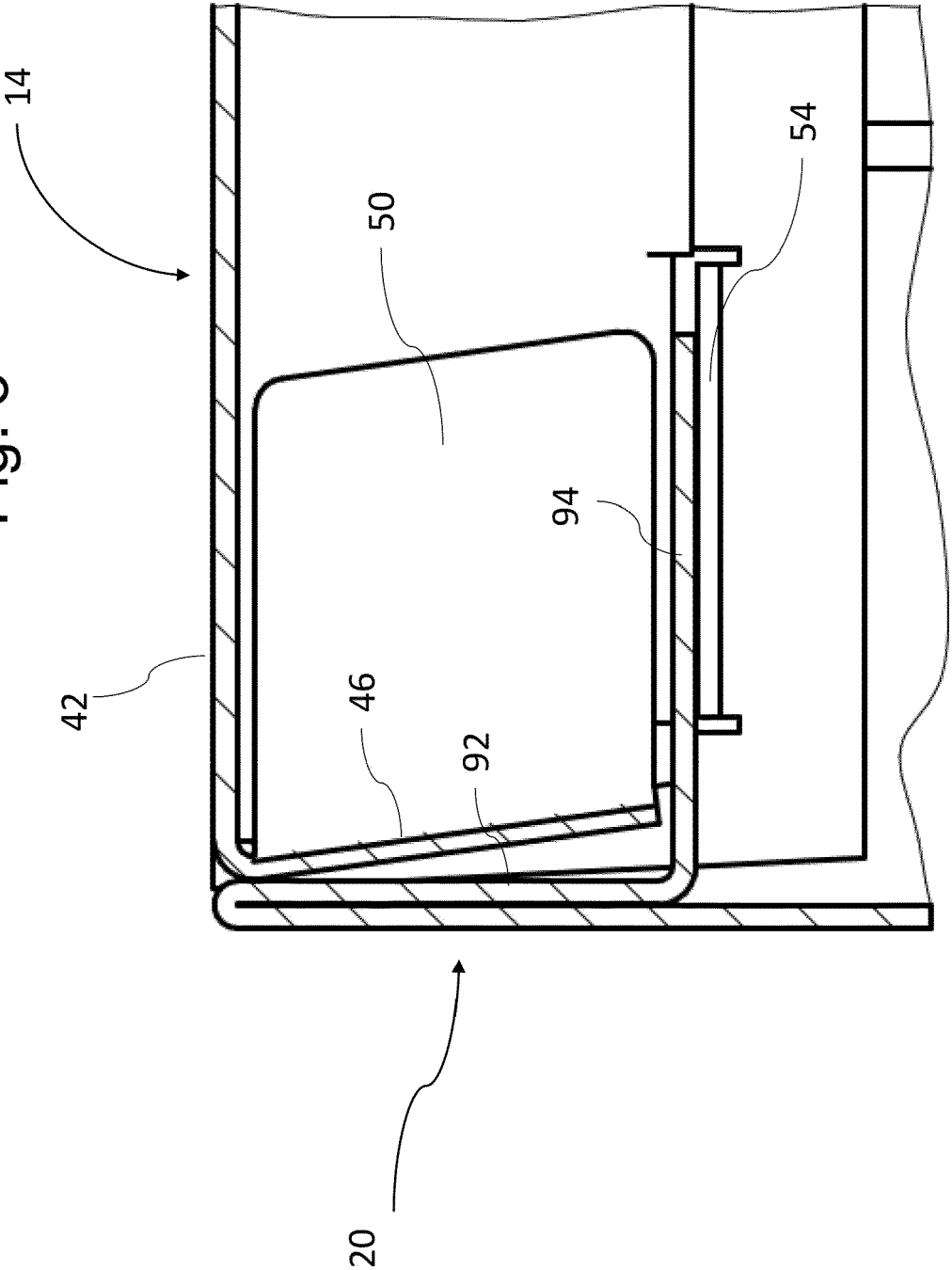


Fig. 4

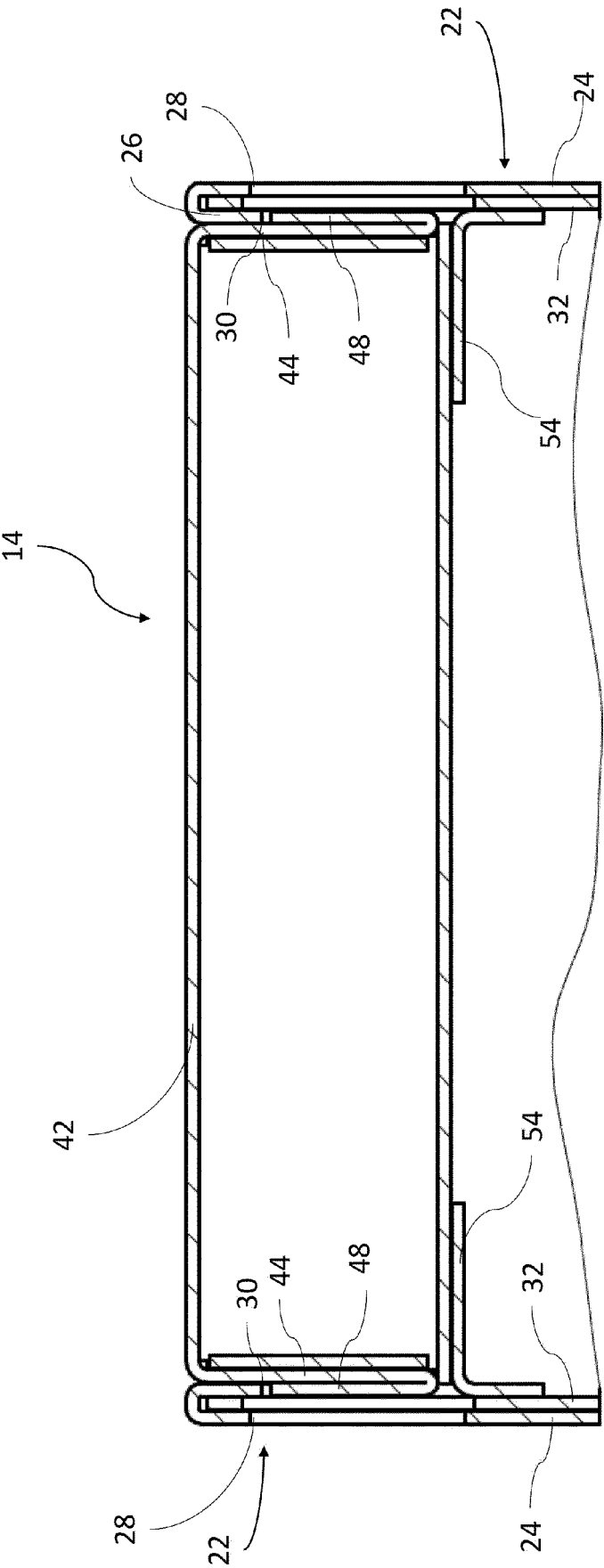


Fig. 5

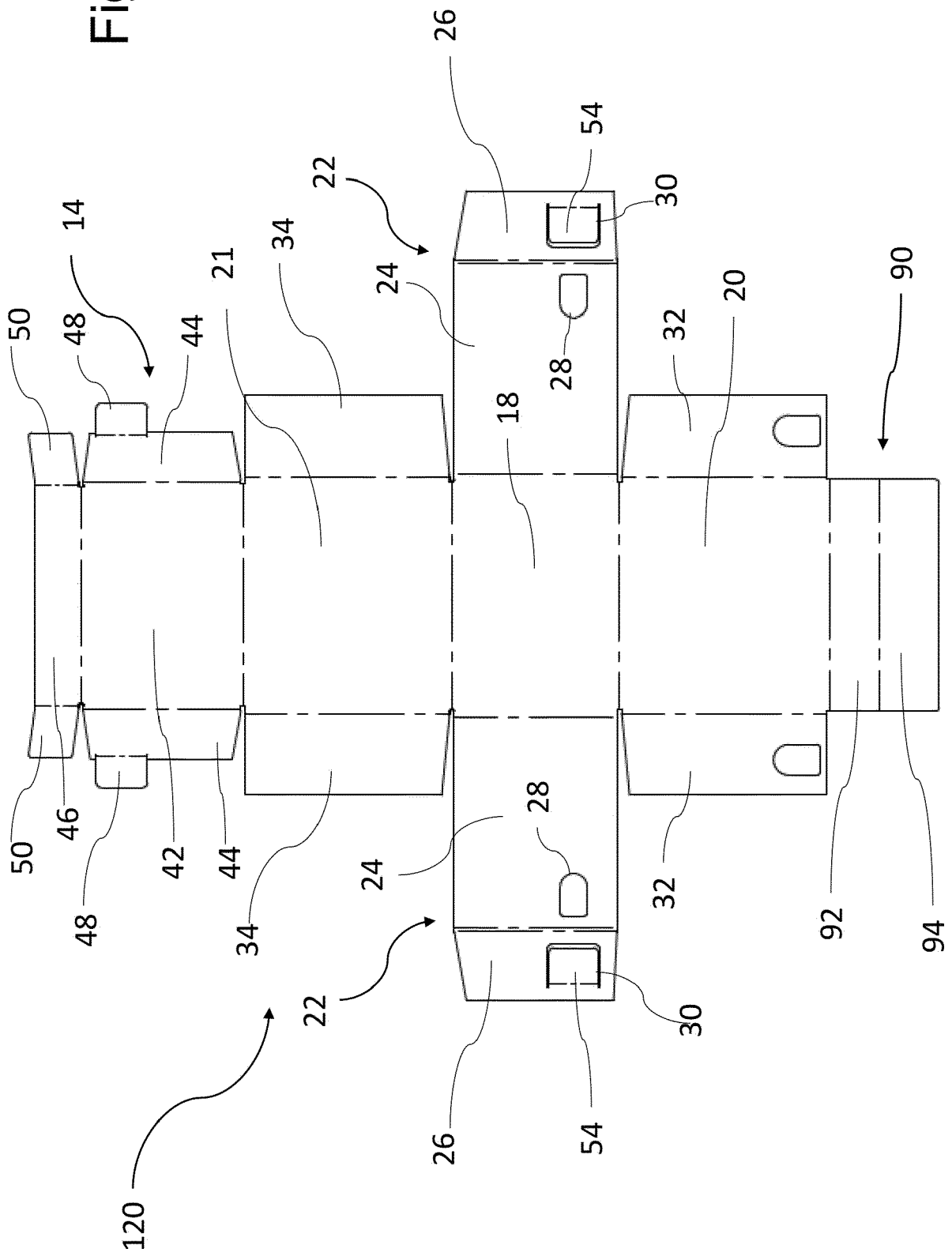


Fig. 6

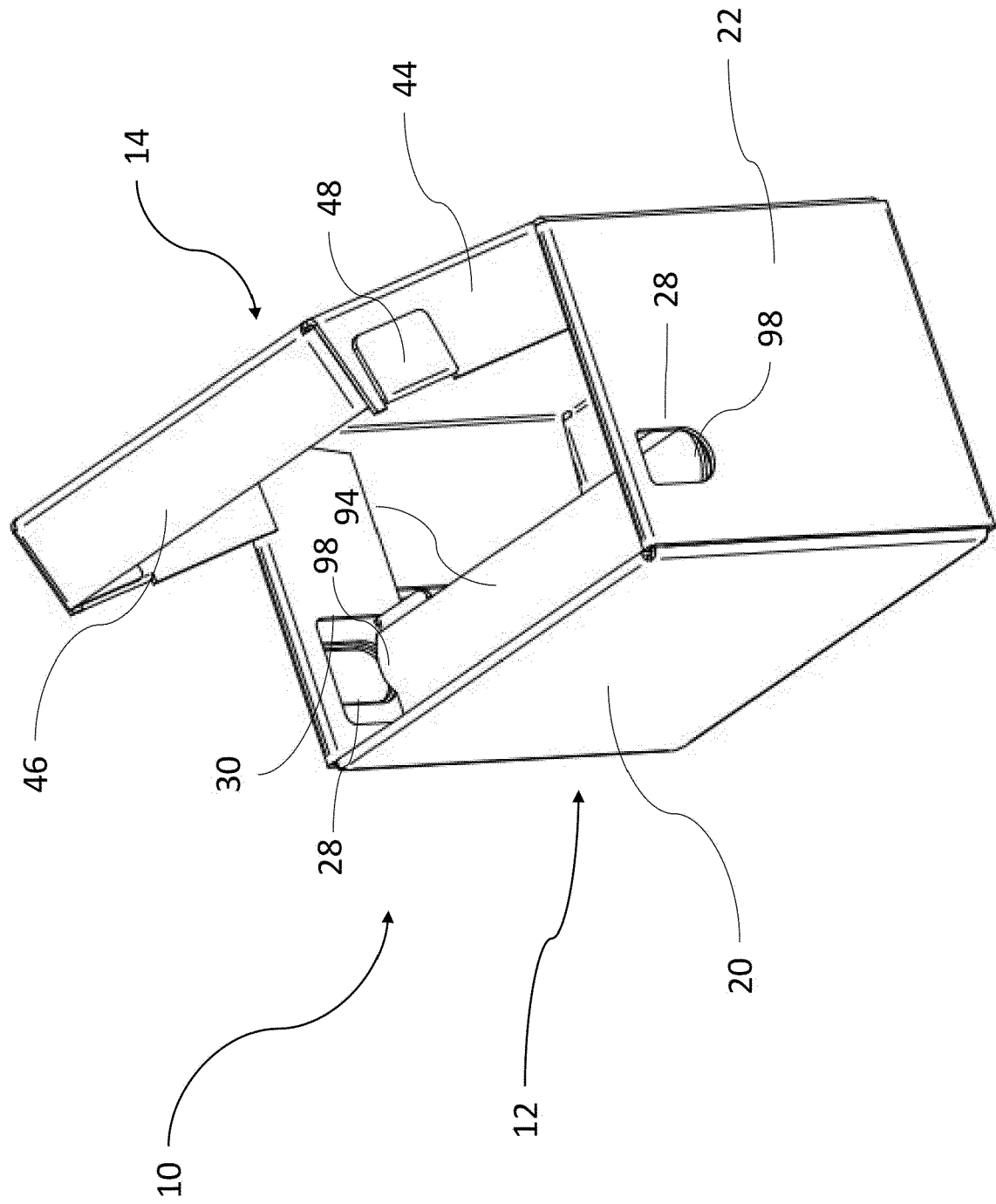


Fig. 7

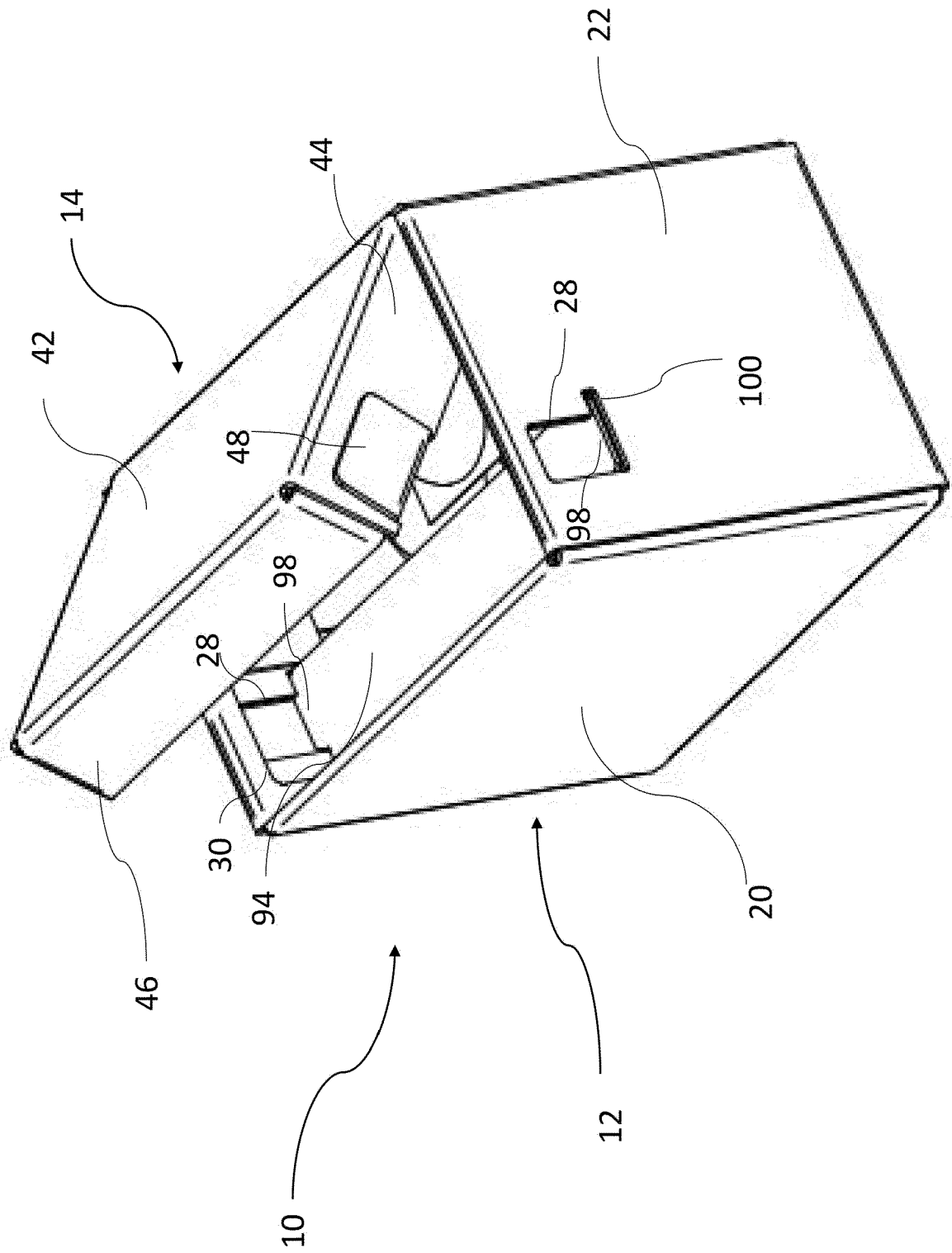


Fig. 8

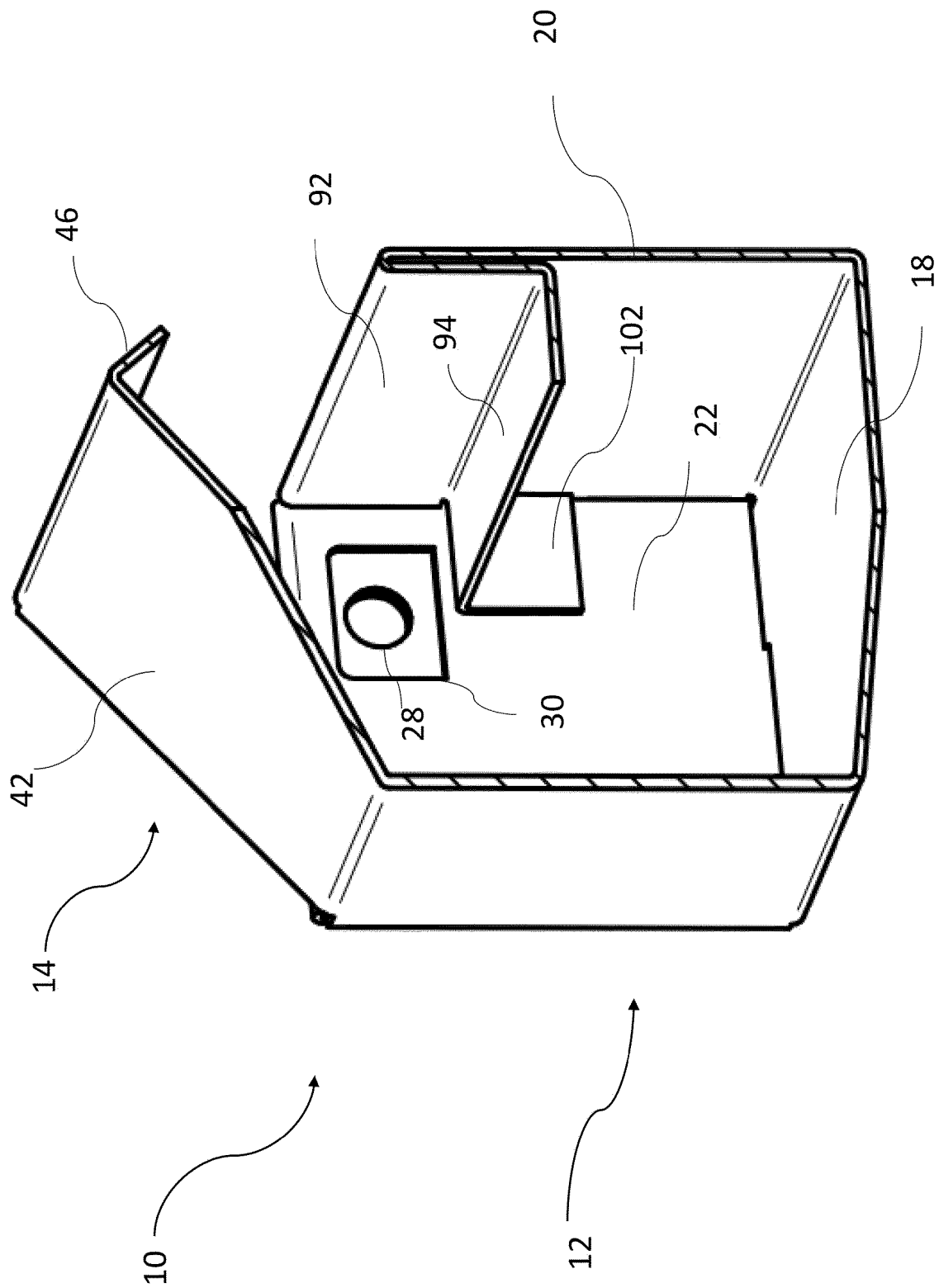


Fig. 9

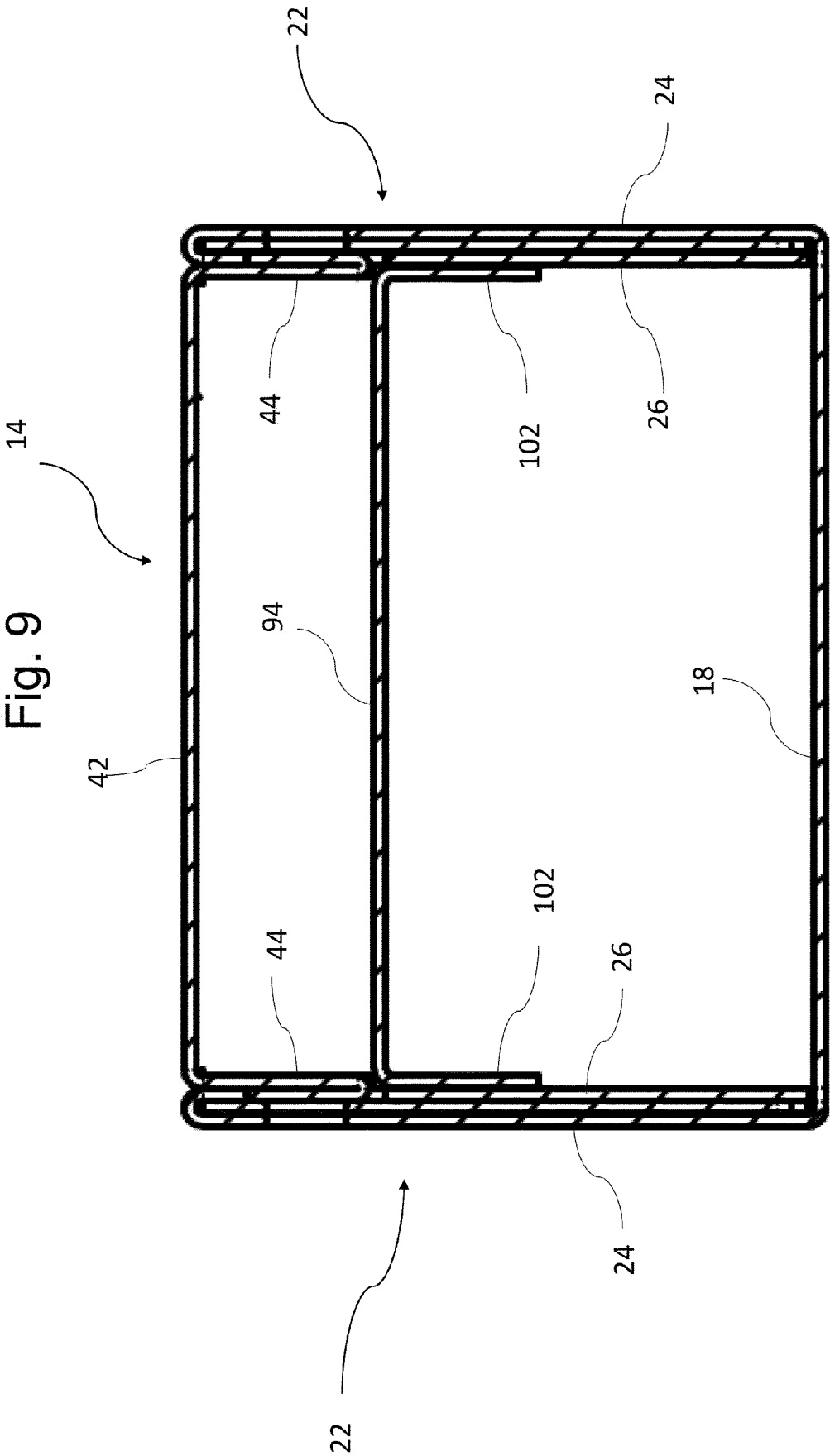


Fig. 10

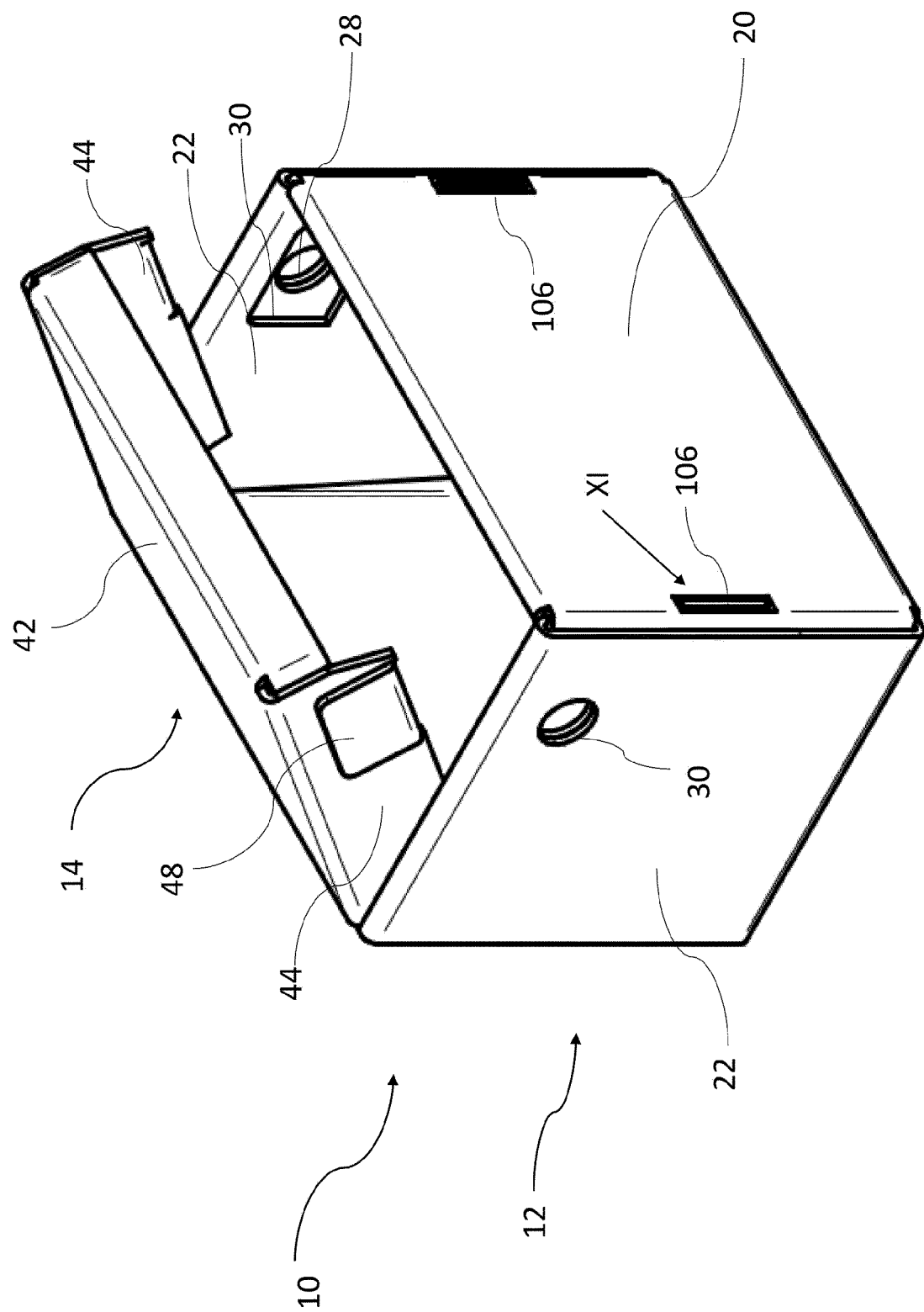


Fig. 11

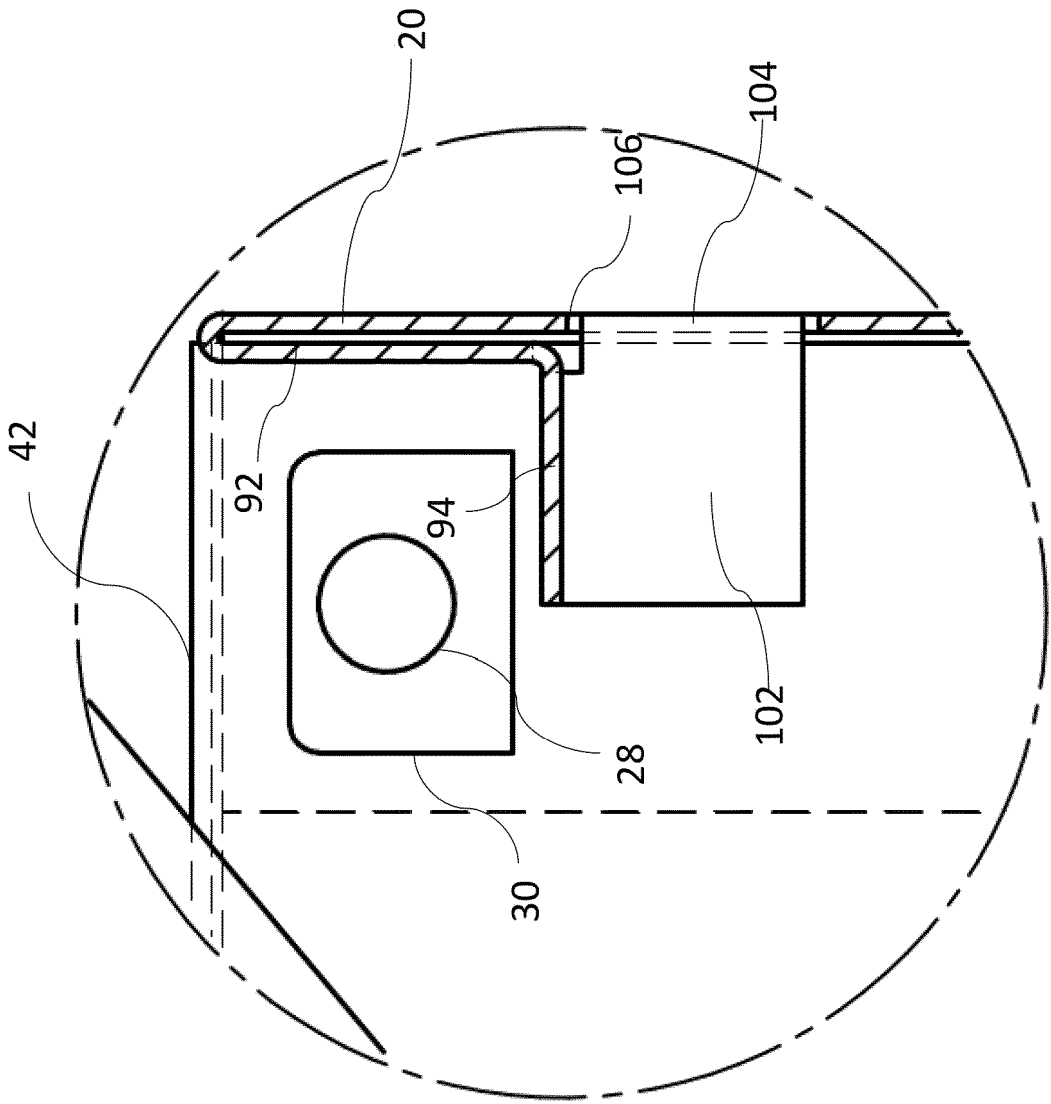


Fig. 12

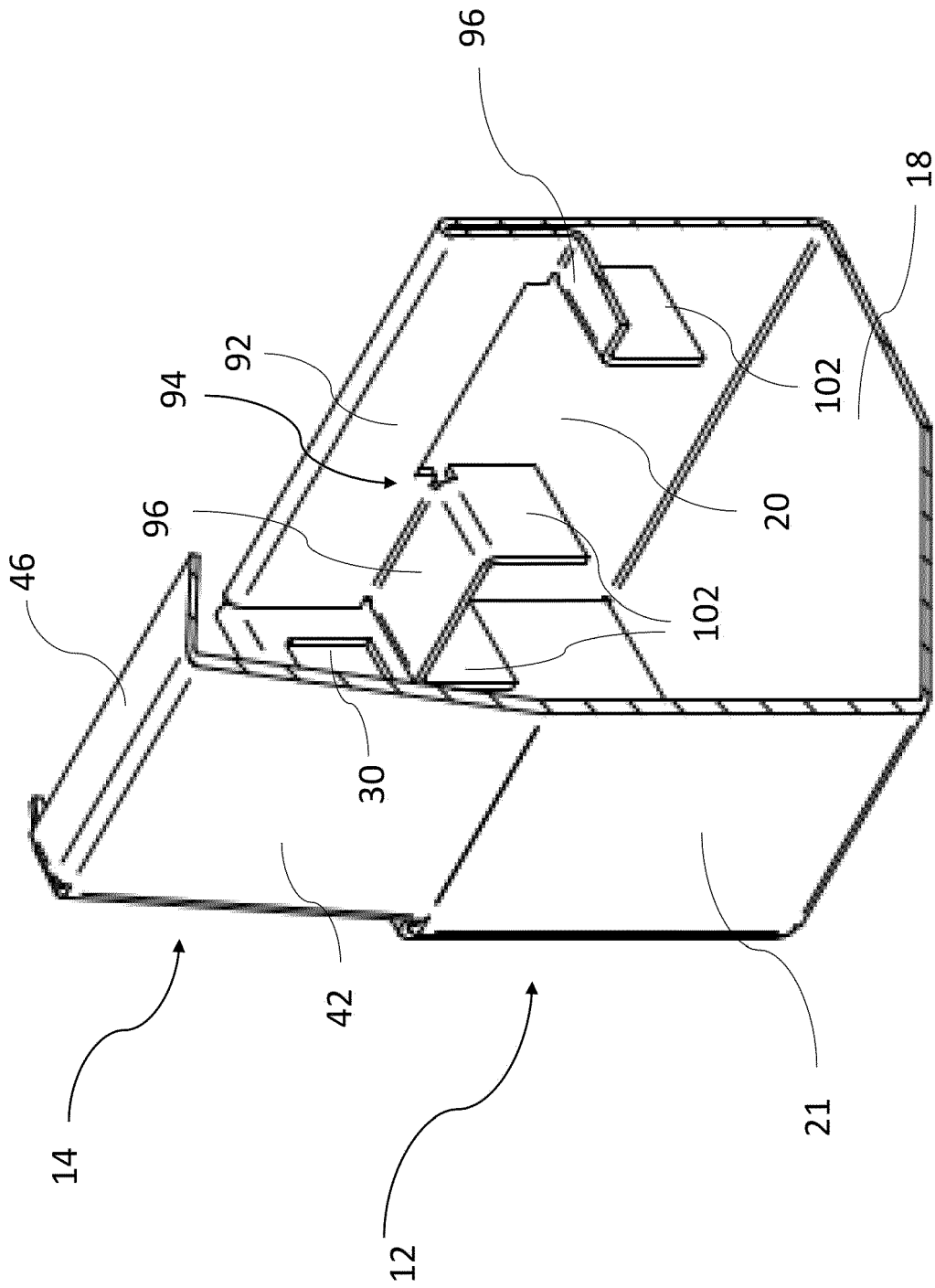


Fig. 13

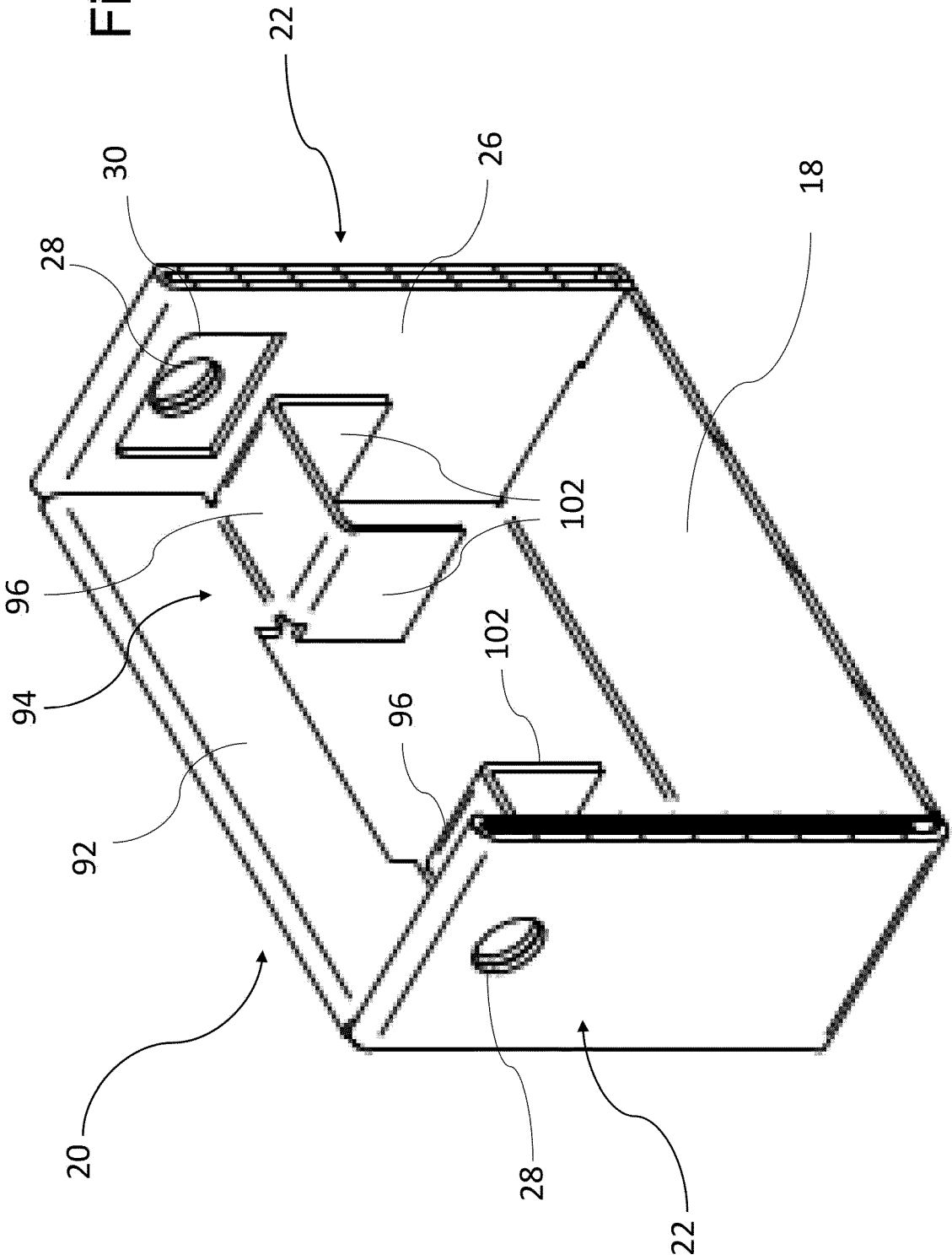
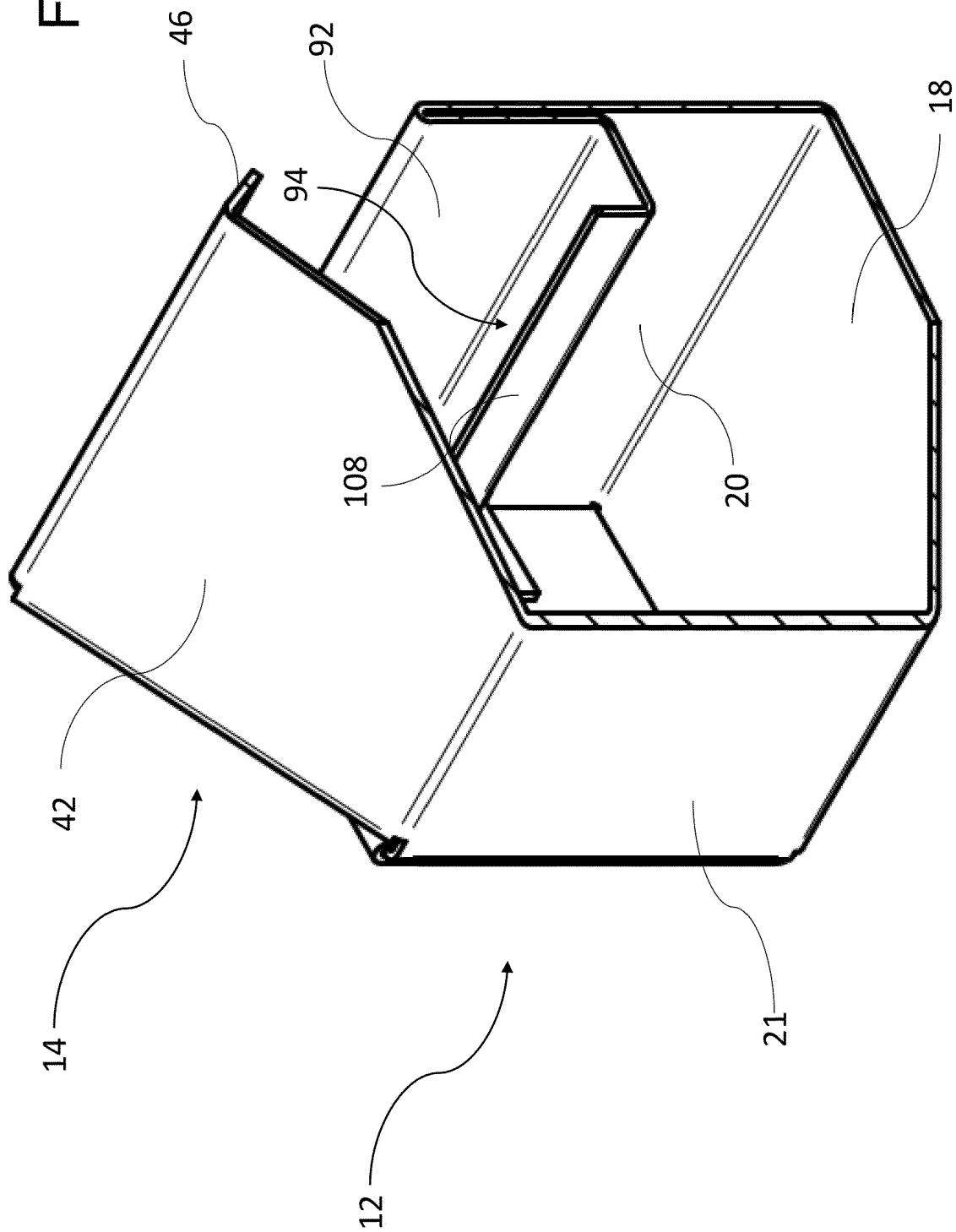


Fig. 14





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Application Number

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The present search report has been drawn up for all claims			
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