

(19)



(11)

EP 3 681 816 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the grant of the patent:

27.10.2021 Bulletin 2021/43

(51) Int Cl.:

B65D 67/02 ^(2006.01) **A24F 15/12** ^(2006.01)
B65D 85/10 ^(2006.01) **B65D 69/00** ^(2006.01)
B65D 21/02 ^(2006.01) **B65D 5/42** ^(2006.01)
A24F 15/18 ^(2006.01) **A24F 47/00** ^(2020.01)

(21) Application number: **18765919.8**

(22) Date of filing: **14.09.2018**

(86) International application number:
PCT/EP2018/074971

(87) International publication number:
WO 2019/053230 (21.03.2019 Gazette 2019/12)

(54) **A RECEPTACLE FOR AEROSOL-GENERATING ARTICLES**

BEHÄLTNIS FÜR AEROSOLERZEUGUNGSARTIKEL

CONTENANT POUR ARTICLES DE PRODUCTION D'AÉROSOL

(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**

(30) Priority: **15.09.2017 EP 17191472**

(43) Date of publication of application:
22.07.2020 Bulletin 2020/30

(73) Proprietor: **Philip Morris Products S.A.**
2000 Neuchâtel (CH)

(72) Inventors:

- **CUCHET, Florent**
11761 Stockholm (SE)
- **FILLEUL, Bayden**
83075 Au bei Bad Feilnbach (DE)

• **REYNOLDS, Mel**
Bray

• **Co. Wicklow (IE)**

• **URASINI, Sara**
Bray

• **Co. Wicklow (IE)**

(74) Representative: **Dowling, Ian**
Reddie & Grose LLP
The White Chapel Building
10 Whitechapel High Street
London E1 8QS (GB)

(56) References cited:

WO-A1-2015/136700 DE-U1- 20 301 248
DE-U1- 29 912 767 FR-A1- 2 684 273
US-A- 4 252 237

Note: Within nine months of the publication of the mention of the grant of the European patent in the European Patent Bulletin, any person may give notice to the European Patent Office of opposition to that patent, in accordance with the Implementing Regulations. Notice of opposition shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

EP 3 681 816 B1

Description

[0001] The present invention relates to receptacles for receiving one or more used aerosol-generating articles. The present invention also relates to a kit comprising the receptacle and a container for aerosol-generating articles.

[0002] DE 203 01 248 U1 describes a device for attaching a cigarette packet to clothing, the device comprising an L-shaped portion for attachment to a cigarette packet and a clip portion for attachment to clothing.

[0003] US 4 252 237 A describes a container for cigarettes and comprising an additional compartment for storing ancillary items. The container has a clip on a back wall of the container.

[0004] WO 2015/136700 A1 describes a plurality of containers for cigarettes, wherein the containers are configured for removable attachment to each other.

[0005] FR 2 684 273 A1 describes a match dispenser for attachment to a packet of cigarettes. The match dispenser includes a panel on its top face that can be opened to allow a user to remove a match when the match dispenser is attached to a hinged lid container. The match dispenser also includes a striking surface on its rear surface.

[0006] After consuming an aerosol-generating article, such as a cigarette, it may be difficult for a user to find a convenient location to dispose of the used article. For example, the user may not be located near to an ashtray or a suitable disposal bin. Therefore, in some circumstances, the user may find it difficult to appropriately dispose of the used article. This problem may be exacerbated when the aerosol-generating article is heated during use without combustion. For example, a number of aerosol-generating systems are known in which an aerosol-generating article, which may be cigarette-like in size and shape, are electrically heated rather than combusted. In such systems, the article may be approximately the same size both before and after use. Therefore, disposal of such articles may be more difficult for a user when compared to a conventional cigarette of which only the filter typically remains after use.

[0007] Therefore, it would be desirable to provide a convenient manner for a user to manage the disposal of used aerosol-generating articles.

[0008] According to a first aspect of the present invention there is provided a receptacle for storing one or more used aerosol-generating articles. The receptacle comprises a box portion comprising a closed bottom end and a top end defining a box opening, wherein the bottom end is opposite the top end. The receptacle also comprises a cover portion movable with respect to the box portion between a closed position in which the cover portion covers the box opening and an open position in which the box opening is uncovered. The receptacle further comprises a clip depending from the top end of the box portion and overlying an outer surface of the box portion. The clip comprises a top end at the top end of the box

portion, and wherein the top end of the clip is non-parallel with the bottom end of the box portion.

[0009] As used herein, the term "aerosol-generating article" refers to an article comprising an aerosol-forming substrate that is capable of releasing volatile compounds that can form an aerosol. The aerosol-forming substrate may release volatile compounds when heated. The aerosol-generating article may be a cigarette and the aerosol-forming substrate may comprise a tobacco rod. The aerosol-generating article may be designed for heating within an aerosol-generating device, for example with an electrical heater.

[0010] The term "underlies" is used herein to mean that a first portion of the receptacle is closer to the interior of the receptacle than an overlapping second portion of the receptacle. That is, the first portion underlies the second portion. Conversely, the term "overlies" can be used to mean that the second portion of the receptacle is closer to the exterior of the receptacle than the first portion. In this case, the second portion overlies the first portion.

[0011] Advantageously, the receptacle according to the first aspect of the present invention provides a convenient way for a user to store one or more used aerosol-generating articles until the used articles can be disposed of appropriately, for example by emptying the receptacle into a suitable disposal bin.

[0012] Advantageously, the cover portion retains the one or more used aerosol-generating articles within the box portion when the cover portion is in the closed position.

[0013] Advantageously, the cover portion is movable with respect to the box portion to permit access to the interior of the box portion when the cover portion is in the open position. When the cover portion is in the open position, one or more used aerosol-generating articles can be at least partially inserted into the box portion through the box opening. When the cover portion is in the open position, one or more used aerosol-generating articles can be removed from the box portion through the box opening.

[0014] Advantageously, the clip provides a convenient way for a user to store or carry the receptacle. In particular, the receptacle may be attached to a container of aerosol-generating articles using the clip. For example, the receptacle may be clipped onto one of the walls of the container.

[0015] The clip depends from the top end of the box portion, the top end defining the box opening. Therefore, advantageously, when the clip is used to attach the receptacle to a side wall of a box portion of a container of aerosol-generating articles, the box opening of the receptacle box portion and a box opening of the container box portion are positioned in the same orientation. Advantageously, this may simplify use of both the receptacle and the container.

[0016] Advantageously, orienting the clip so that it depends from a top end of the box portion may facilitate retention of the receptacle on a container of aerosol-gen-

erating articles. For example, to remove the receptacle from the container it may be necessary to open a lid portion of the container and slide the receptacle upwardly to disengage the clip from a side wall of a box portion of the container. Therefore, this arrangement may reduce or minimise unintentional movement of the clip with respect to the container when the container is being used in an upright orientation with the container lid portion at the top.

[0017] Advantageously, the clip allows reversible attachment of the receptacle to a container of aerosol-generating articles. Therefore, when all of the aerosol-generating articles within the container have been used, the receptacle may be removed and attached to a new container of aerosol-generating articles.

[0018] The clip comprises a top end at the top end of the receptacle box portion, wherein the top end of the clip is non-parallel with the bottom end of the receptacle box portion. Advantageously, this may facilitate attachment of the receptacle to a side wall of a container of aerosol-generating articles. For example, conventional hinged-lid containers for aerosol-generating articles comprise a box portion having side walls with top edges that are non-parallel with the bottom edges of the side walls. Therefore, the non-parallel arrangement of the top end of the clip may allow the top end of the clip to rest fully on the top edge of the side wall when the receptacle is attached to the container. Advantageously, this may allow the lid of hinged-lid containers to fully close when the receptacle is attached to the container.

[0019] The clip may be fixed to the box portion at or around the top end of the clip.

[0020] Preferably, the clip comprises a first portion overlying the outer surface of the receptacle box portion and a second portion positioned inside the receptacle box portion so that at least a part of the box portion is positioned between the first portion of the clip and the second portion of the clip. Advantageously, this may facilitate securing of the clip to the receptacle box portion.

[0021] In embodiments in which the clip comprises a top end, preferably the top end is formed at a transition from the first portion of the clip to the second portion of the clip. Preferably, the transition is formed by a bend in the material forming the clip.

[0022] The second portion of the clip may be shorter than the first portion of the clip. Advantageously, providing the clip with a shorter second portion may reduce or minimise the weight of the receptacle. Advantageously, providing the clip with a longer first portion may increase or maximise the stability of the receptacle when attached to a container of aerosol-generating articles.

[0023] The second portion of the clip may be longer than the first portion of the clip. Advantageously, providing the clip with a shorter first portion may reduce or minimise the weight of the receptacle. Advantageously, providing the clip with a longer second portion may facilitate securing the clip to the box portion and may increase or maximise the stability of the clip relative to the box portion

of the receptacle.

[0024] The receptacle box portion may have a maximum height extending between the uppermost portion of the top end and the lowermost portion of the closed bottom end. The first portion of the clip may have a maximum length extending between the uppermost portion of the top end and a lowermost portion of a free end distal from the top end. The maximum length of the first portion of the clip is preferably at least about 50 percent of the maximum height of the receptacle box portion, more preferably at least about 60 percent of the maximum height of the receptacle box portion, more preferably at least about 70 percent of the maximum height of the receptacle box portion, more preferably at least about 80 percent of the maximum height of the receptacle box portion. Additionally, or alternatively, the maximum length of the first portion of the clip is preferably less than about 100 percent of the maximum height of the receptacle box portion, more preferably less than about 95 percent of the maximum height of the receptacle box portion, more preferably less than about 90 percent of the maximum height of the receptacle box portion, more preferably less than about 85 percent of the maximum height of the receptacle box portion.

[0025] At least a part of the receptacle box portion may be received between the first portion of the clip and the second portion of the clip by an interference fit. Advantageously, this may provide a simply and cost-effective way of securing the clip to the receptacle box portion.

[0026] The second portion of the clip may be secured to an inner surface of the box portion. For example, the second portion of the clip may be adhered to the inner surface of the box portion.

[0027] The second portion of the clip may be secured to the box portion by overmolding of part of the box portion over the second portion of the clip.

[0028] Preferably, the clip is formed from a resilient material so that the clip is biased towards the outer surface of the box portion. Advantageously, this may facilitate a secure attachment of the receptacle to a container of aerosol-generating articles. For example, when the receptacle is attached to a wall portion of a container, the biasing of the clip towards the outer surface of the receptacle box portion may retain the wall portion of the container between the clip and the receptacle box portion by an interference fit.

[0029] The clip may be formed from a plastic. Preferably, the clip is formed from a metal. Suitable metals include, but are not limited to, stainless steel, for example stainless steel grade 1.4301, and stainless spring steel, or combinations thereof.

[0030] The clip may comprise a first clip positioned on a first side of the receptacle box portion and a second clip provided on a second side of the receptacle box portion, wherein the first side is opposite the second side. Advantageously, this may allow a user to attach the receptacle to either side of a container of aerosol-generating articles. Advantageously, providing the receptacle

with two clips may allow a user to attach more than one receptacle to a container of aerosol-generating articles. For example, a first receptacle could be attached to a first side of a container using the first clip and a second receptacle could be attached to a second side of the container using the second clip. Alternatively, a plurality of receptacles could be provided, with some of the receptacles comprising only one clip positioned on the first side of the receptacle and the remaining receptacles comprising only one clip positioned on the second side of the receptacle. In this way, a user may attach a receptacle to each side of the container of aerosol-generating articles without the need for redundant clips on the receptacles.

[0031] The cover portion may be arranged to slide with respect to the box portion between the closed and open positions. For example, the cover portion may slide within or over one or more guide portions on the box portion. Preferably, the cover portion is arranged to slide in a direction orthogonal to the extent of the clip. Advantageously, this may reduce or eliminate relative movement between the clip and a container to which the receptacle is attached when the cover portion is opened and closed.

[0032] The cover portion may be a lid portion depending from the top end of the box portion along a hinge line. Preferably, the lid portion is rotatable about the hinge line between the open and closed positions. The hinge line may extend in a direction orthogonal to the extent of the clip. Advantageously, this may reduce or eliminate relative movement between the clip and a container to which the receptacle is attached when the lid portion is opened and closed.

[0033] The hinge line may be formed by a hinge that is formed separately from the box portion and the lid portion and secured to the box portion and the lid portion.

[0034] The box portion and the lid portion may be integrally formed from a single material, wherein the hinge line is formed by a line of weakness in the material.

[0035] Preferably, the hinge line is formed by a hinge comprising one or more first hinge portions formed on the lid portion and one or more second hinge portions formed on the box portion.

[0036] The first hinge portions may comprise one or more protrusions and the second hinge portions may comprise one or more recesses, wherein the one or more protrusions are received within the one or more recesses and are free to rotate within the one or more recesses.

[0037] The first hinge portions may comprise one or more recesses and the second hinge portions may comprise one or more protrusions, wherein the one or more protrusions are received within the one or more recesses and wherein the one or more recesses are free to rotate about the one or more protrusions.

[0038] The one or more first hinge portions and the one or more second hinge portions may be mated together by a snap fit. This type of hinge may be known as a snap hinge.

[0039] Preferably, the lid portion comprises a recess

in a bottom edge of the lid portion, wherein a portion of the clip is received within the recess when the lid portion is in the closed position. Advantageously, the recess may prevent obstruction of the lid portion by the clip when the lid portion is moved into the closed position. In embodiments in which the clip comprises a top end, preferably the top end is received within the recess when the lid portion is in the closed position.

[0040] The receptacle may comprise a flange extending from the top end of the box portion and extending around at least part of the box opening, wherein the lid portion abuts the flange when the lid portion is in the closed position.

[0041] Advantageously, the flange may provide a tactile indication to a user that the lid portion has been moved completely into the closed position.

[0042] Advantageously, the flange may reduce or minimise air flow between the lid portion and the box portion when the lid portion is in the closed position. This may reduce or minimise the escape of odour from the receptacle when one or more used aerosol-generating articles are received within the box portion.

[0043] Preferably, the flange is formed integrally with the box portion. That is, preferably the flange and the box portion are formed from a continuous section of material.

[0044] The flange may comprise a gap or a recess in which a portion of the clip is positioned. In embodiments in which the clip comprises a top end, the top end may be positioned within the gap or recess.

[0045] The receptacle may comprise a closure configured to retain the cover portion in the closed position.

[0046] The closure may comprise an interference fit between the cover portion and the box portion when the cover portion is moved into the closed position. For example, in embodiments in which the cover portion is a lid portion and the receptacle comprises a flange, the flange may be received inside the lid portion by an interference fit when the lid portion is moved into the closed position. In some embodiments, the closure may comprise a snap fit between the cover portion and the box portion.

[0047] The closure may comprise a magnetic closure. The magnetic closure may comprise a first magnetic material positioned on the cover portion and a second magnetic material positioned on the box portion.

[0048] The closure may comprise a hook and loop fastener. The hook and loop fastener may comprise a portion of hook material positioned on one of the cover portion and the box portion, and a portion of loop material positioned on the other of the cover portion and the box portion.

[0049] When the cover portion is in the closed position, preferably the receptacle has a top end formed by a top of the cover portion and a bottom end formed by the closed bottom end of the receptacle box portion. The receptacle has a maximum external height extending between the uppermost part of the receptacle top end and the lowermost part of the receptacle bottom end. Preferably, the maximum external height is between about 40

millimetres and about 150 millimetres, more preferably between about 40 millimetres and about 125 millimetres. The maximum external height may be about 48 millimetres.

[0050] Preferably the box portion has a first side on which the clip is positioned and a second side opposite the first side. The receptacle has a maximum external width extending between the outermost parts of the first and second sides. Preferably, the maximum external width is between about 25 millimetres and about 60 millimetres, more preferably between about 25 millimetres and about 50 millimetres. The maximum external width may be about 15.3 millimetres.

[0051] When the cover portion is in the closed position, preferably the cover portion has a maximum external width extending in the same direction as the maximum external width of the box portion. Preferably, the cover portion has a maximum external width that is equal to or less than the maximum external width of the box portion. Most preferably, the maximum external width of the cover portion is the same as the maximum external width of the box portion.

[0052] Preferably, the box portion has a back side and a front side opposite the back side. In embodiments in which the cover portion is a lid portion, preferably the hinge line extends across the back side of the box portion. The box portion has a maximum external depth extending between the outermost parts of the back and front sides. Preferably, the maximum external depth of the box portion is between about 6 millimetres and about 50 millimetres, more preferably between about 12 millimetres and about 25 millimetres. The maximum external depth may be about 15.3 millimetres.

[0053] When the cover portion is in the closed position, preferably the cover portion has a maximum external depth extending in the same direction as the maximum external depth of the box portion. Preferably, the cover portion has a maximum external depth that is equal to or less than the maximum external depth of the box portion. Most preferably, the maximum external depth of the cover portion is the same as the maximum external depth of the box portion.

[0054] The box portion may comprise a box bottom wall forming the closed bottom end of the box portion. The box portion may further comprise a box back wall extending from the box bottom wall, a box front wall opposite the box back wall, and first and second box side walls each extending between the box back wall and the box front wall.

[0055] Preferably, each of the box back wall, the box front wall and the first and second box side walls comprises a top edge, wherein the top edges together define the box opening.

[0056] Preferably, the clip depends from the top edge of the first box side wall. Preferably, the clip overlies an outer surface of the first box side wall.

[0057] In embodiments in which the cover portion is a lid portion, preferably the hinge line extends at least par-

tially along the top edge of the box back wall.

[0058] The box portion and the cover portion may be formed from any suitable material. The box portion and the cover portion may be formed from the same material.

5 The box portion and the cover portion may be formed from different materials. Suitable materials include, but are not limited to, metal, plastic, and combinations thereof. Preferred materials may include polypropylene, polyethylene, polyamide, polystyrene, and combinations thereof.

10 **[0059]** According to a second aspect of the present invention there is provided a kit comprising a receptacle according to the first aspect of the present invention, in accordance with any of the embodiments described herein. The kit also comprises a container for aerosol-generating articles. Preferably, the container is a hinged-lid container. Preferably, the clip is sized to engage a side wall of the hinged-lid container.

15 **[0060]** Preferably, the container comprises a container box portion comprising a container box bottom wall, a container box back wall extending from the container box bottom wall, a container box front wall opposite the container box back wall, and first and second container box side walls each extending between the container box back wall and the container box front wall. Preferably, the container also comprises a container lid portion depending from the container box back wall along a hinge line. Preferably, the clip is sized to engage the first container box side wall.

20 **[0061]** In embodiments in which the clip comprises a top end at the top end of the receptacle box portion, preferably the top end of the clip is non-parallel with the bottom end of the box portion and a top edge of the first container box side wall is non-parallel with the container box bottom wall. Preferably, the top end of the clip is parallel with the top edge of the first container box side wall when the clip is engaged with the first container box side wall.

25 **[0062]** The container may comprise an inner frame partially positioned within the container box portion. Preferably, the container is configured to receive the clip between the inner frame and the first container box side wall. For example, in embodiments in which the inner frame is adhered to an inner surface of the container box portion, preferably the container is free from adhesive between the inner frame and the first container box side wall.

30 **[0063]** The container may be formed from any suitable material. Suitable materials include, but are not limited to, cardboard, paperboard, plastic, metal, or combinations thereof. Preferably, the container is formed from one or more folded laminar cardboard blanks. Preferably, the cardboard has a weight of between about 100 grams per square metre and about 350 grams per square metre.

35 **[0064]** The kit may further comprise a plurality of aerosol-generating articles positioned within the container. Preferably, each aerosol-generating article comprises an aerosol-forming substrate and a mouthpiece. The aero-

sol-forming substrate may comprise tobacco. The mouthpiece may comprise a filter.

[0065] The receptacle of the first and second aspects is suitable for storing one or more aerosol-generating articles. Preferably, the receptacle is suitable for storing a plurality of aerosol-generating articles. Typically, the receptacle is configured to store one or more aerosol-generating articles within the receptacle box portion when the cover portion is in the closed position. Preferably, the receptacle is sized to store a plurality of used aerosol-generating articles within the receptacle box portion when the cover portion is in the closed position. For example, the receptacle may be sized to contain two, three, four, five, six, seven, eight, nine or ten used aerosol-generating articles.

[0066] According to a third aspect of the present invention there is provided a receptacle for storing one or more used aerosol-generating articles. The receptacle comprises a box portion comprising a closed first end and a second end defining a box opening, wherein the second end is opposite the first end. The receptacle also comprises a cover portion movable with respect to the box portion between a closed position in which the cover portion covers the box opening and an open position in which the box opening is uncovered. The receptacle also comprises a clip depending from the box portion and overlying an outer surface of the closed first end of the box portion. The clip comprises a first portion overlying the outer surface of the closed first end of the receptacle box portion and a second portion positioned inside the receptacle box portion so that at least a part of the box portion is positioned between the first portion of the clip and the second portion of the clip, and wherein the second portion of the clip is shorter than the first portion of the clip.

[0067] Advantageously, the receptacle according to the third aspect of the present invention provides a convenient way for a user to store one or more used aerosol-generating articles until the used articles can be disposed of appropriately, for example by emptying the receptacle into a suitable disposal bin.

[0068] Advantageously, the cover portion retains the one or more used aerosol-generating articles within the box portion when the cover portion is in the closed position.

[0069] Advantageously, the cover portion is movable with respect to the box portion to permit access to the interior of the box portion when the cover portion is in the open position. When the cover portion is in the open position, one or more used aerosol-generating articles can be at least partially inserted into the box portion through the box opening. When the cover portion is in the open position, one or more used aerosol-generating articles can be removed from the box portion through the box opening.

[0070] Advantageously, the clip provides a convenient way for a user to store or carry the receptacle. In particular, the receptacle may be attached to a container of aerosol-generating articles using the clip. For example,

the receptacle may be clipped onto one of the walls of the container.

[0071] Advantageously, the clip allows reversible attachment of the receptacle to a container of aerosol-generating articles. Therefore, when all of the aerosol-generating articles within the container have been used, the receptacle may be removed and attached to a new container of aerosol-generating articles.

[0072] The first end may be a front end of the box portion and the second end may be a back end of the box portion.

[0073] Preferably, the first end is a top end of the box portion and the second end is a bottom end of the box portion.

[0074] Preferably, the clip comprises a first portion overlying the outer surface of the receptacle box portion and a second portion positioned inside the receptacle box portion so that at least a part of the box portion is positioned between the first portion of the clip and the second portion of the clip. Advantageously, this may facilitate securing of the clip to the receptacle box portion.

[0075] The second portion of the clip may be shorter than the first portion of the clip. Advantageously, providing the clip with a shorter second portion may reduce or minimise the weight of the receptacle. Advantageously, providing the clip with a longer first portion may increase or maximise the stability of the receptacle when attached to a container of aerosol-generating articles.

[0076] The second portion of the clip may be longer than the first portion of the clip. Advantageously, providing the clip with a shorter first portion may reduce or minimise the weight of the receptacle. Advantageously, providing the clip with a longer second portion may facilitate securing the clip to the box portion and may increase or maximise the stability of the clip relative to the box portion of the receptacle.

[0077] The receptacle box portion may have a maximum width extending between the outermost portions of first and second sides of the receptacle box portion. The first portion of the clip may have a maximum length extending between a first end of the first portion and a free end distal from the first end. The maximum length of the first portion of the clip is preferably at least about 50 percent of the maximum width of the receptacle box portion, more preferably at least about 60 percent of the maximum width of the receptacle box portion, more preferably at least about 70 percent of the maximum width of the receptacle box portion, more preferably at least about 80 percent of the maximum width of the receptacle box portion. Additionally, or alternatively, the maximum length of the first portion of the clip is preferably less than about 100 percent of the maximum width of the receptacle box portion, more preferably less than about 95 percent of the maximum width of the receptacle box portion, more preferably less than about 90 percent of the maximum width of the receptacle box portion, more preferably less than about 85 percent of the maximum width of the receptacle box portion.

[0078] At least a part of the receptacle box portion may be received between the first portion of the clip and the second portion of the clip by an interference fit. Advantageously, this may provide a simply and cost-effective way of securing the clip to the receptacle box portion.

[0079] The second portion of the clip may be secured to an inner surface of the box portion. For example, the second portion of the clip may be adhered to the inner surface of the box portion.

[0080] The second portion of the clip may be secured to the box portion by overmolding of part of the box portion over the second portion of the clip.

[0081] Preferably, the clip is formed from a resilient material so that the clip is biased towards the outer surface of the closed first end of the box portion. Advantageously, this may facilitate a secure attachment of the receptacle to a container of aerosol-generating articles. For example, when the receptacle is attached to a wall portion of a container, the biasing of the clip towards the outer surface of the closed first end of the receptacle box portion may retain the wall portion of the container between the clip and the receptacle box portion by an interference fit.

[0082] The clip may be formed from a plastic. Preferably, the clip is formed from a metal. Suitable metals include, but are not limited to, stainless steel, for example stainless steel grade 1.4301, and stainless spring steel, or combinations thereof.

[0083] The cover portion may be arranged to slide with respect to the box portion between the closed and open positions. For example, the cover portion may slide within or over one or more guide portions on the box portion.

[0084] The cover portion may be a lid portion depending from the second end of the box portion along a hinge line. Preferably, the lid portion is rotatable about the hinge line between the open and closed positions.

[0085] The hinge line may be formed by a hinge that is formed separately from the box portion and the lid portion and secured to the box portion and the lid portion.

[0086] The box portion and the lid portion may be integrally formed from a single material, wherein the hinge line is formed by a line of weakness in the material.

[0087] Preferably, the hinge line is formed by a hinge comprising one or more first hinge portions formed on the lid portion and one or more second hinge portions formed on the box portion.

[0088] The first hinge portions may comprise one or more protrusions and the second hinge portions may comprise one or more recesses, wherein the one or more protrusions are received within the one or more recesses and are free to rotate within the one or more recesses.

[0089] The first hinge portions may comprise one or more recesses and the second hinge portions may comprise one or more protrusions, wherein the one or more protrusions are received within the one or more recesses and wherein the one or more recesses are free to rotate about the one or more protrusions.

[0090] The one or more first hinge portions and the one

or more second hinge portions may be mated together by a snap fit. This type of hinge may be known as a snap hinge.

[0091] The receptacle may comprise a flange extending from the second end of the box portion and extending around at least part of the box opening, wherein the lid portion abuts the flange when the lid portion is in the closed position.

[0092] Advantageously, the flange may provide a tactile indication to a user that the lid portion has been moved completely into the closed position.

[0093] Advantageously, the flange may reduce or minimise air flow between the lid portion and the box portion when the lid portion is in the closed position. This may reduce or minimise the escape of odour from the receptacle when one or more used aerosol-generating articles are received within the box portion.

[0094] Preferably, the flange is formed integrally with the box portion. That is, preferably the flange and the box portion are formed from a continuous section of material.

[0095] Preferably, the receptacle comprises a closure configured to retain the cover portion in the closed position.

[0096] The closure may comprise an interference fit between the cover portion and the box portion when the cover portion is moved into the closed position. For example, in embodiments in which the cover portion is a lid portion and the receptacle comprises a flange, the flange may be received inside the lid portion by an interference fit when the lid portion is moved into the closed position. In some embodiments, the closure may comprise a snap fit between the cover portion and the box portion.

[0097] The closure may comprise a magnetic closure. The magnetic closure may comprise a first magnetic material positioned on the cover portion and a second magnetic material positioned on the box portion.

[0098] The closure may comprise a hook and loop fastener. The hook and loop fastener may comprise a portion of hook material positioned on one of the cover portion and the box portion, and a portion of loop material positioned on the other of the cover portion and the box portion.

[0099] An inner surface of at least one of the box portion and the cover portion may define one or more projections extending into the box portion when the cover portion is in the closed position. Advantageously, the one or more projections may maintain one or more used aerosol-generating articles in a desired orientation within the box portion. An inner surface of at least one of the box portion and the cover portion may define a scalloped portion.

[0100] When the cover portion is in the closed position, preferably the receptacle has a bottom end formed by a bottom of the cover portion and a top end formed by the closed first end of the receptacle box portion. The receptacle has a maximum external height extending between the uppermost part of the receptacle top end and the lowermost part of the receptacle bottom end. Preferably,

the maximum external height is between about 25 millimetres and about 60 millimetres, more preferably between about 25 millimetres and about 50 millimetres. The maximum external height may be about 15.3 millimetres.

[0101] Preferably the box portion has a first side and a second side opposite the first side. The receptacle has a maximum external width extending between the outermost parts of the first and second sides. Preferably, the maximum external width is between about 40 millimetres and about 100 millimetres, more preferably between about 50 millimetres and about 90 millimetres. The maximum external width may be about 74 millimetres.

[0102] When the cover portion is in the closed position, preferably the cover portion has a maximum external width extending in the same direction as the maximum external width of the box portion. Preferably, the cover portion has a maximum external width that is equal to or less than the maximum external width of the box portion. Most preferably, the maximum external width of the cover portion is the same as the maximum external width of the box portion.

[0103] Preferably, the box portion has a back side and a front side opposite the back side. In embodiments in which the cover portion is a lid portion, preferably the hinge line extends across the back side of the box portion. The box portion has a maximum external depth extending between the outermost parts of the back and front sides. Preferably, the maximum external depth of the box portion is between about 6 millimetres and about 50 millimetres, more preferably between about 12 millimetres and about 25 millimetres. The maximum external depth may be about 15.3 millimetres.

[0104] When the cover portion is in the closed position, preferably the cover portion has a maximum external depth extending in the same direction as the maximum external depth of the box portion. Preferably, the cover portion has a maximum external depth that is equal to or less than the maximum external depth of the box portion. Most preferably, the maximum external depth of the cover portion is the same as the maximum external depth of the box portion.

[0105] The box portion may comprise a box top wall forming the closed first end of the box portion. The box portion may further comprise a box back wall extending from the box bottom wall, a box front wall opposite the box back wall, and first and second box side walls each extending between the box back wall and the box front wall.

[0106] Preferably, each of the box back wall, the box front wall and the first and second box side walls comprises a bottom edge, wherein the bottom edges together define the box opening.

[0107] Preferably, the clip overlies an outer surface of the box top wall.

[0108] In embodiments in which the cover portion is a lid portion, preferably the hinge line extends at least partially along the bottom edge of the box back wall.

[0109] The box portion and the cover portion may be

formed from any suitable material. The box portion and the cover portion may be formed from the same material. The box portion and the cover portion may be formed from different materials. Suitable materials include, but are not limited to, metal, plastic, and combinations thereof. Preferred materials may include polypropylene, polyethylene, polyamide, polystyrene, and combinations thereof.

[0110] According to a fourth aspect of the present invention there is provided a kit comprising a receptacle according to the third aspect of the present invention, in accordance with any of the embodiments described herein. The kit also comprises a container for aerosol-generating articles. Preferably, the container is a hinged-lid container. Preferably, the container comprises an aperture configured to receive the clip so that the clip engages a bottom wall of the container.

[0111] Preferably, the container comprises a container box portion comprising a container box bottom wall, a container box back wall extending from the container box bottom wall, a container box front wall opposite the container box back wall, and first and second container box side walls each extending between the container box back wall and the container box front wall.

[0112] Preferably, the aperture configured to receive the clip is positioned between a bottom edge of the first container box side wall and the container box bottom wall.

[0113] Preferably, the closed first end of the receptacle box portion and the container box bottom wall have the same size and shape.

[0114] The container may be formed from any suitable material. Suitable materials include, but are not limited to, cardboard, paperboard, plastic, metal, or combinations thereof. Preferably, the container is formed from one or more folded laminar cardboard blanks. Preferably, the cardboard has a weight of between about 100 grams per square metre and about 350 grams per square metre.

[0115] The kit may further comprise a plurality of aerosol-generating articles positioned within the container. Preferably, each aerosol-generating article comprises an aerosol-forming substrate and a mouthpiece. The aerosol-forming substrate may comprise tobacco. The mouthpiece may comprise a filter.

[0116] The receptacle of the third and fourth aspects is suitable for storing one or more aerosol-generating articles. Preferably, the receptacle is suitable for storing a plurality of aerosol-generating articles. Typically, the receptacle is configured to store one or more aerosol-generating articles within the receptacle box portion when the cover portion is in the closed position. Preferably, the receptacle is sized to store a plurality of used aerosol-generating articles within the receptacle box portion when the cover portion is in the closed position. For example, the receptacle may be sized to contain two, three, four, five, six, seven, eight, nine or ten used aerosol-generating articles.

[0117] According to fifth aspect of the present invention there is provided a receptacle for storing one or more

used aerosol-generating articles. The receptacle comprises a box portion comprising a closed front end and a back end defining a box opening, wherein the back end is opposite the front end. The receptacle also comprises a cover portion movable with respect to the box portion between a closed position in which the cover portion covers the box opening and an open position in which the box opening is uncovered. The receptacle also comprises a base portion extending from the closed front end of the box portion, the base portion comprising a top wall orthogonal to the closed front end of the box portion and a bottom wall opposite the top wall. The receptacle also comprises a clip depending from the base portion and overlying an outer surface of the top wall.

[0118] Advantageously, the receptacle according to the fifth aspect of the present invention provides a convenient way for a user to store one or more used aerosol-generating articles until the used articles can be disposed of appropriately, for example by emptying the receptacle into a suitable disposal bin.

[0119] Advantageously, the cover portion retains the one or more used aerosol-generating articles within the box portion when the cover portion is in the closed position.

[0120] Advantageously, the cover portion is movable with respect to the box portion to permit access to the interior of the box portion when the cover portion is in the open position. When the cover portion is in the open position, one or more used aerosol-generating articles can be at least partially inserted into the box portion through the box opening. When the cover portion is in the open position, one or more used aerosol-generating articles can be removed from the box portion through the box opening.

[0121] Advantageously, the clip provides a convenient way for a user to store or carry the receptacle. In particular, the receptacle may be attached to a container of aerosol-generating articles using the clip. For example, the receptacle may be clipped onto one of the walls of the container.

[0122] Advantageously, the clip allows reversible attachment of the receptacle to a container of aerosol-generating articles. Therefore, when all of the aerosol-generating articles within the container have been used, the receptacle may be removed and attached to a new container of aerosol-generating articles.

[0123] Preferably, the clip comprises a first portion overlying the outer surface of the base portion top wall and a second portion positioned inside the base portion so that at least a part of the base portion is positioned between the first portion of the clip and the second portion of the clip. Advantageously, this may facilitate securing of the clip to the receptacle base portion.

[0124] The second portion of the clip may be shorter than the first portion of the clip. Advantageously, providing the clip with a shorter second portion may reduce or minimise the weight of the receptacle. Advantageously, providing the clip with a longer first portion may increase

or maximise the stability of the receptacle when attached to a container of aerosol-generating articles.

[0125] The second portion of the clip may be longer than the first portion of the clip. Advantageously, providing the clip with a shorter first portion may reduce or minimise the weight of the receptacle. Advantageously, providing the clip with a longer second portion may facilitate securing the clip to the base portion and may increase or maximise the stability of the clip relative to the base portion of the receptacle.

[0126] The receptacle base portion may have a maximum width extending between the outermost portions of first and second sides of the receptacle base portion. The first portion of the clip may have a maximum length extending between a first end of the first portion and a free end distal from the first end. The maximum length of the first portion of the clip is preferably at least about 50 percent of the maximum width of the receptacle base portion, more preferably at least about 60 percent of the maximum width of the receptacle base portion, more preferably at least about 70 percent of the maximum width of the receptacle base portion, more preferably at least about 80 percent of the maximum width of the receptacle base portion. Additionally, or alternatively, the maximum length of the first portion of the clip is preferably less than about 100 percent of the maximum width of the receptacle base portion, more preferably less than about 95 percent of the maximum width of the receptacle base portion, more preferably less than about 90 percent of the maximum width of the receptacle base portion, more preferably less than about 85 percent of the maximum width of the receptacle base portion.

[0127] At least a part of the receptacle base portion may be received between the first portion of the clip and the second portion of the clip by an interference fit. Advantageously, this may provide a simply and cost-effective way of securing the clip to the receptacle base portion.

[0128] The second portion of the clip may be secured to an inner surface of the base portion. For example, the second portion of the clip may be adhered to the inner surface of the base portion.

[0129] The second portion of the clip may be secured to the base portion by overmolding of part of the base portion over the second portion of the clip.

[0130] Preferably, the clip is formed from a resilient material so that the clip is biased towards the outer surface of the top wall of the base portion. Advantageously, this may facilitate a secure attachment of the receptacle to a container of aerosol-generating articles. For example, when the receptacle is attached to a wall portion of a container, the biasing of the clip towards the outer surface of the receptacle box portion may retain the wall portion of the container between the clip and the receptacle base portion by an interference fit.

[0131] The clip may be formed from a plastic. Preferably, the clip is formed from a metal. Suitable metals include, but are not limited to, stainless steel, for example

stainless steel grade 1.4301, and stainless spring steel, or combinations thereof.

[0132] The cover portion may be arranged to slide with respect to the box portion between the closed and open positions. For example, the cover portion may slide within or over one or more guide portions on the box portion.

[0133] The cover portion may be connected to the box portion or the base portion by at least one hinge, wherein the cover portion is configured to pivot about the at least one hinge between the closed position and the open position.

[0134] The hinge may be formed separately from the box portion, the base portion and the cover portion and secured to the cover portion and at least one of the box portion and the base portion.

[0135] The cover portion and at least one of the box portion and the base portion may be integrally formed from a single material, wherein the hinge is formed by a line of weakness in the material.

[0136] Preferably, the hinge comprises one or more first hinge portions formed on the cover portion and one or more second hinge portions formed on at least one of the box portion and the base portion.

[0137] The first hinge portions may comprise one or more protrusions and the second hinge portions may comprise one or more recesses, wherein the one or more protrusions are received within the one or more recesses and are free to rotate within the one or more recesses.

[0138] The first hinge portions may comprise one or more recesses and the second hinge portions may comprise one or more protrusions, wherein the one or more protrusions are received within the one or more recesses and wherein the one or more recesses are free to rotate about the one or more protrusions.

[0139] The one or more first hinge portions and the one or more second hinge portions may be mated together by a snap fit. This type of hinge may be known as a snap hinge.

[0140] The receptacle may comprise a flange extending from box portion and extending around at least part of the box opening, wherein the cover portion abuts the flange when the cover portion is in the closed position.

[0141] Advantageously, the flange may provide a tactile indication to a user that the cover portion has been moved completely into the closed position.

[0142] Advantageously, the flange may reduce or minimise air flow between the cover portion and the box portion when the cover portion is in the closed position. This may reduce or minimise the escape of odour from the receptacle when one or more used aerosol-generating articles are received within the box portion.

[0143] Preferably, the flange is formed integrally with the box portion. That is, preferably the flange and the box portion are formed from a continuous section of material.

[0144] Preferably, the receptacle comprises a closure configured to retain the cover portion in the closed position.

[0145] The closure may comprise an interference fit

between the cover portion and the box portion when the cover portion is moved into the closed position. For example, in embodiments in which the receptacle comprises a flange, the flange may be received inside the cover portion by an interference fit when the cover portion is moved into the closed position. In some embodiments, the closure may comprise a snap fit between the cover portion and the box portion.

[0146] The closure may comprise a magnetic closure. The magnetic closure may comprise a first magnetic material positioned on the cover portion and a second magnetic material positioned on the box portion.

[0147] The closure may comprise a hook and loop fastener. The hook and loop fastener may comprise a portion of hook material positioned on one of the cover portion and the box portion, and a portion of loop material positioned on the other of the cover portion and the box portion.

[0148] When the cover portion is in the closed position, preferably at least one of the cover portion and the box portion define a top end of the receptacle and at least one of the cover portion and the box portion define a bottom end of the receptacle. The receptacle has a maximum external height extending between the uppermost part of the receptacle top end and the lowermost part of the receptacle bottom end. Preferably, the maximum external height is between about 40 millimetres and about 150 millimetres, more preferably between about 40 millimetres and about 125 millimetres. The maximum external height may be about 48 millimetres.

[0149] Preferably the receptacle has a first side and a second side opposite the first side. The receptacle has a maximum external width extending between the outermost parts of the first and second sides. Preferably, the maximum external width is between about 40 millimetres and about 100 millimetres, more preferably between about 50 millimetres and about 90 millimetres. The maximum external width may be about 74 millimetres.

[0150] When the cover portion is in the closed position, preferably the receptacle has a back end formed by a back end of the cover portion, the receptacle back end opposite the closed front end of the box portion. The receptacle has a first maximum external depth extending between the outermost parts of the receptacle back end and the closed front end of the box portion. Preferably, the first maximum external depth is between about 5 millimetres and about 25 millimetres, more preferably between about 5 millimetres and about 20 millimetres.

[0151] Preferably, the base portion has a maximum external height extending between the base portion top wall and the base portion bottom wall of between about 5 millimetres and about 30 millimetres, more preferably between about 10 millimetres and about 25 millimetres, more preferably between about 15 millimetres and about 20 millimetres. The maximum external height may be about 16 millimetres.

[0152] Preferably, the base portion as a maximum external depth extending between the closed front end of

the box portion and a front wall of the base portion. Preferably, the maximum external depth of the base portion is between about 6 millimetres and about 50 millimetres, more preferably between about 12 millimetres and about 25 millimetres. The maximum external depth may be about 15.3 millimetres.

[0153] The base portion, the box portion and the cover portion may be formed from any suitable material. The base portion, the box portion and the cover portion may be formed from the same material. At least two of the base portion, the box portion and the cover portion may be formed from different materials. Suitable materials include, but are not limited to, metal, plastic, and combinations thereof. Preferred materials may include polypropylene, polyethylene, polyamide, polystyrene, and combinations thereof.

[0154] According to a sixth aspect of the present invention there is provided a kit comprising a receptacle according to the fifth aspect of the present invention, in accordance with any of the embodiments described herein. The kit also comprises a container for aerosol-generating articles. Preferably, the container is a hinged-lid container.

[0155] Preferably, the container comprises a container box portion comprising a closed bottom end and a top end defining a container box opening, wherein the top end is opposite the bottom end. The container further comprises a container lid portion depending from a back wall of the container box portion along a hinge line extending at least partially along a top edge of the back wall of the container box portion. The container box portion also comprises an aperture configured to receive the clip so that the clip engages the closed bottom end of the container box portion, wherein the closed front end of the receptacle box portion overlies a portion of the back wall of the container box portion when the clip is engaged with the closed bottom end of the container box portion.

[0156] Preferably, the container box portion has a first height extending between the hinge line and the closed bottom end of the container box portion, wherein the receptacle box portion has a second height extending between a top of the receptacle box portion and a bottom of the receptacle box portion in a direction parallel to the first height when the clip is engaged with the closed bottom end of the container box portion, and wherein the second height is the equal to or greater than the first height. Advantageously, this may provide the box portion with a sufficient height to accommodate any aerosol-generating articles that may be stored within the container.

[0157] Preferably, the container lid portion has a third height extending between the hinge line and a closed top end of the container lid portion, and wherein a distance between the top of the receptacle box portion and the hinge line is equal to or greater than the third height when the clip is engaged with the closed bottom end of the container box portion. Advantageously, this arrangement may allow a user to fully open the container lid portion when the receptacle is attached to the container. That is,

the distance between the top of the receptacle box portion and the hinge line may be sufficient to prevent contact between the container lid portion and the receptacle when the container lid portion is fully opened.

[0158] Preferably, the base portion comprises a top surface and an opposite bottom surface, wherein the clip overlies the top surface of the base portion, and wherein a height of the base portion between the top surface and the bottom surface is equal to or greater than the third height of the container lid portion. Advantageously, this arrangement may provide a desired spacing between the top of the receptacle box portion and the container hinge line.

[0159] The container may be formed from any suitable material. Suitable materials include, but are not limited to, cardboard, paperboard, plastic, metal, or combinations thereof. Preferably, the container is formed from one or more folded laminar cardboard blanks. Preferably, the cardboard has a weight of between about 100 grams per square metre and about 350 grams per square metre.

[0160] The kit may further comprise a plurality of aerosol-generating articles positioned within the container. Preferably, each aerosol-generating article comprises an aerosol-forming substrate and a mouthpiece. The aerosol-forming substrate may comprise tobacco. The mouthpiece may comprise a filter.

[0161] The receptacle of the fifth and sixth aspects is suitable for storing one or more aerosol-generating articles. Preferably, the receptacle is suitable for storing a plurality of aerosol-generating articles. Typically, the receptacle is configured to store one or more aerosol-generating articles within the receptacle box portion when the cover portion is in the closed position. Preferably, the receptacle is sized to store a plurality of used aerosol-generating articles within the receptacle box portion when the cover portion is in the closed position. For example, the receptacle may be sized to contain two, three, four, five, six, seven, eight, nine or ten used aerosol-generating articles.

[0162] According to a seventh aspect of the present invention there is provided a receptacle for storing one or more used aerosol-generating articles. The receptacle comprises a box portion comprising a closed bottom end and a top end defining a box opening, wherein the bottom end is opposite the top end. The receptacle also comprises a cover portion movable with respect to the box portion between a closed position in which the cover portion covers the box opening and an open position in which the box opening is uncovered. The receptacle also comprises a skirt portion extending from the box portion about a periphery of the bottom end of the box portion, wherein the skirt portion defines a cavity for receiving a portion of a container of aerosol-generating articles.

[0163] Advantageously, the receptacle according to the seventh aspect of the present invention provides a convenient way for a user to store one or more used aerosol-generating articles until the used articles can be disposed of appropriately, for example by emptying the

receptacle into a suitable disposal bin.

[0164] Advantageously, the cover portion retains the one or more used aerosol-generating articles within the box portion when the cover portion is in the closed position.

[0165] Advantageously, the cover portion is movable with respect to the box portion to permit access to the interior of the box portion when the cover portion is in the open position. When the cover portion is in the open position, one or more used aerosol-generating articles can be at least partially inserted into the box portion through the box opening. When the cover portion is in the open position, one or more used aerosol-generating articles can be removed from the box portion through the box opening.

[0166] Advantageously, the cavity defined by the skirt provides a convenient way for a user to store or carry the receptacle. In particular, the receptacle may be attached to a container of aerosol-generating articles by inserting a portion of the container into the cavity. For example, a lid portion of a container may be inserted into the cavity.

[0167] The cavity is formed at a closed bottom end of the box portion, opposite the top end defining the box opening. Therefore, advantageously, when the cavity is used to attach the receptacle to a lid portion of a container of aerosol-generating articles, the box opening of the receptacle box portion and a box opening of the container box portion are positioned in the same orientation. Advantageously, this may simplify use of both the receptacle and the container.

[0168] Advantageously, the cavity allows reversible attachment of the receptacle to a container of aerosol-generating articles. Therefore, when all of the aerosol-generating articles within the container have been used, the receptacle may be removed and attached to a new container of aerosol-generating articles.

[0169] Preferably, the skirt portion comprises first and second side walls each comprising a top edge connected to the bottom end of the box portion, wherein each of the first and second sidewalls comprises a bottom edge opposite the top edge, and wherein the bottom edge is non-parallel with the top edge. Advantageously, this may facilitate attachment of the receptacle to a lid portion of a container of aerosol-generating articles. For example, conventional hinged-lid containers for aerosol-generating articles comprise a box portion having side walls with top edges that are non-parallel with the bottom edges of the sidewalls. Therefore, the non-parallel arrangement of bottom edges of the first and second skirt side walls may facilitate matching of the size and shape of the cavity to the size and shape of a lid portion of a container of aerosol-generating articles. Advantageously, this may allow a lid portion of a container of aerosol-generating articles to be fully inserted into the cavity without restricting opening and closing of the container lid portion while the receptacle is attached to the container lid portion.

[0170] Preferably, the skirt portion is formed integrally with the box portion. That is, preferably, the skirt portion

and the box portion are formed from a continuous section of material.

[0171] The cover portion may be arranged to slide with respect to the box portion between the closed and open positions. For example, the cover portion may slide within or over one or more guide portions on the box portion.

[0172] The cover portion may be a lid portion depending from the top end of the box portion along a hinge line. Preferably, the lid portion is rotatable about the hinge line between the open and closed positions.

[0173] The hinge line may be formed by a hinge that is formed separately from the box portion and the lid portion and secured to the box portion and the lid portion.

[0174] The box portion and the lid portion may be integrally formed from a single material, wherein the hinge line is formed by a line of weakness in the material.

[0175] Preferably, the hinge line is formed by a hinge comprising one or more first hinge portions formed on the lid portion and one or more second hinge portions formed on the box portion.

[0176] The first hinge portions may comprise one or more protrusions and the second hinge portions may comprise one or more recesses, wherein the one or more protrusions are received within the one or more recesses and are free to rotate within the one or more recesses.

[0177] The first hinge portions may comprise one or more recesses and the second hinge portions may comprise one or more protrusions, wherein the one or more protrusions are received within the one or more recesses and wherein the one or more recesses are free to rotate about the one or more protrusions.

[0178] The one or more first hinge portions and the one or more second hinge portions may be mated together by a snap fit. This type of hinge may be known as a snap hinge.

[0179] The receptacle may comprise a flange extending from the top end of the box portion and extending around at least part of the box opening, wherein the lid portion abuts the flange when the lid portion is in the closed position.

[0180] Advantageously, the flange may provide a tactile indication to a user that the lid portion has been moved completely into the closed position.

[0181] Advantageously, the flange may reduce or minimise air flow between the lid portion and the box portion when the lid portion is in the closed position. This may reduce or minimise the escape of odour from the receptacle when one or more used aerosol-generating articles are received within the box portion.

[0182] Preferably, the flange is formed integrally with the box portion. That is, preferably the flange and the box portion are formed from a continuous section of material.

[0183] Preferably, the receptacle comprises a closure configured to retain the cover portion in the closed position.

[0184] The closure may comprise an interference fit between the cover portion and the box portion when the cover portion is moved into the closed position. For ex-

ample, in embodiments in which the cover portion is a lid portion and the receptacle comprises a flange, the flange may be received inside the lid portion by an interference fit when the lid portion is moved into the closed position. In some embodiments, the closure may comprise a snap fit between the cover portion and the box portion.

[0185] The closure may comprise a magnetic closure. The magnetic closure may comprise a first magnetic material positioned on the cover portion and a second magnetic material positioned on the box portion.

[0186] The closure may comprise a hook and loop fastener. The hook and loop fastener may comprise a portion of hook material positioned on one of the cover portion and the box portion, and a portion of loop material positioned on the other of the cover portion and the box portion.

[0187] When the cover portion is in the closed position, preferably the receptacle has a top end formed by a top of the cover portion. The receptacle has a maximum height extending between the uppermost part of the receptacle top end and the lowermost part of the closed bottom end of the receptacle box portion. Preferably, the maximum height is between about 25 millimetres and about 60 millimetres, more preferably between about 25 millimetres and about 50 millimetres.

[0188] Preferably the box portion has a first side and a second side opposite the first side. The receptacle has a maximum external width extending between the outermost parts of the first and second sides. Preferably, the maximum external width is between about 40 millimetres and about 100 millimetres, more preferably between about 50 millimetres and about 90 millimetres.

[0189] When the cover portion is in the closed position, preferably the cover portion has a maximum external width extending in the same direction as the maximum external width of the box portion. Preferably, the cover portion has a maximum external width that is equal to or less than the maximum external width of the box portion. Most preferably, the maximum external width of the cover portion is the same as the maximum external width of the box portion.

[0190] Preferably, the box portion has a back side and a front side opposite the back side. In embodiments in which the cover portion is a lid portion, preferably the hinge line extends across the back side of the box portion. The box portion has a maximum external depth extending between the outermost parts of the back and front sides. Preferably, the maximum external depth of the box portion is between about 6 millimetres and about 50 millimetres, more preferably between about 12 millimetres and about 25 millimetres.

[0191] When the cover portion is in the closed position, preferably the cover portion has a maximum external depth extending in the same direction as the maximum external depth of the box portion. Preferably, the cover portion has a maximum external depth that is equal to or less than the maximum external depth of the box portion. Most preferably, the maximum external depth of the cov-

er portion is the same as the maximum external depth of the box portion.

[0192] The box portion may comprise a box bottom wall forming the closed bottom end of the box portion.

5 The box portion may further comprise a box back wall extending from the box bottom wall, a box front wall opposite the box back wall, and first and second box side walls each extending between the box back wall and the box front wall.

10 **[0193]** Preferably, each of the box back wall, the box front wall and the first and second box side walls comprises a top edge, wherein the top edges together define the box opening.

15 **[0194]** In embodiments in which the cover portion is a lid portion, preferably the hinge line extends at least partially along the top edge of the box back wall.

[0195] The skirt portion, the box portion and the cover portion may be formed from any suitable material. The skirt portion, the box portion and the cover portion may be formed from the same material. At least two of the skirt portion, the box portion and the cover portion may be formed from different materials. Suitable materials include, but are not limited to, metal, plastic, and combinations thereof. Preferred materials may include polypropylene, polyethylene, polyamide, polystyrene, and combinations thereof.

25 **[0196]** According to an eighth aspect of the present invention there is provided a kit comprising a receptacle according to the seventh aspect of the present invention, in accordance with any of the embodiments described herein. The kit also comprises a container for aerosol-generating articles. The container comprises a container box portion and a container lid portion depending from the container box portion along a hinge line. The cavity is configured to receive at least part of the container lid portion by an interference fit. Preferably, the cavity and the container lid portion have the same size and shape.

35 **[0197]** Preferably, a bottom edge of the skirt portion and a bottom edge of the container lid portion have the same shape. Preferably, the bottom edge of the skirt portion is aligned with the bottom edge of the container lid portion when the container lid portion is received within the cavity. Advantageously, this may allow opening and closing of the container lid portion when the container lid portion is received within the cavity.

45 **[0198]** The container may be formed from any suitable material. Suitable materials include, but are not limited to, cardboard, paperboard, plastic, metal, or combinations thereof. Preferably, the container is formed from one or more folded laminar cardboard blanks. Preferably, the cardboard has a weight of between about 100 grams per square metre and about 350 grams per square metre.

50 **[0199]** The kit may further comprise a plurality of aerosol-generating articles positioned within the container. Preferably, each aerosol-generating article comprises an aerosol-forming substrate and a mouthpiece. The aerosol-forming substrate may comprise tobacco. The mouthpiece may comprise a filter.

[0200] The receptacle of the seventh and eighth aspects is suitable for storing one or more aerosol-generating articles. Preferably, the receptacle is suitable for storing a plurality of aerosol-generating articles. Typically, the receptacle is configured to store one or more aerosol-generating articles within the receptacle box portion when the cover portion is in the closed position. Preferably, the receptacle is sized to store a plurality of used aerosol-generating articles within the receptacle box portion when the cover portion is in the closed position. For example, the receptacle may be sized to contain two, three, four, five, six, seven, eight, nine or ten used aerosol-generating articles.

[0201] The invention is further described, by way of example only, with reference to the accompanying drawings in which:

Figure 1 shows a perspective view of a receptacle according to a first embodiment of the present invention;

Figure 2 shows a front view of the receptacle of Figure 1;

Figure 3 shows a perspective view of the receptacle of Figure 1 with the cover portion in an open position;

Figure 4 shows a perspective view of the receptacle of Figure 3 with a plurality of used aerosol-generating articles received within the receptacle;

Figure 5 shows a perspective view of a kit comprising the receptacle of Figure 3 and a container for aerosol-generating articles;

Figure 6 shows a perspective view of a receptacle according to a second embodiment of the present invention;

Figure 7 shows a front view of the receptacle of Figure 6;

Figure 8 shows a perspective view of a kit comprising the receptacle of Figure 7 and a container for aerosol-generating articles;

Figure 9 shows a perspective view of the kit of Figure 8 with the receptacle fully attached to the container;

Figure 10 shows a perspective view of the kit of Figure 9 with the receptacle cover portion in an open position;

Figure 11 shows a perspective view of a receptacle according to a third embodiment of the present invention;

Figure 12 shows a front view of the receptacle of Figure 11;

Figure 13 shows a side view of the receptacle of Figure 11;

Figure 14 shows a perspective view of a kit comprising the receptacle of Figure 11 and a container for aerosol-generating articles;

Figure 15 shows a perspective view of the kit of Figure 14 with the receptacle cover portion in an open position;

Figure 16 shows a perspective view of a kit comprising a receptacle according to a fourth embodiment

of the present invention and a container for aerosol-generating articles;

Figure 17 shows a cross-sectional view of the receptacle of Figure 16 along line 1-1;

Figure 18 shows a perspective view of the kit of Figure 16 with the receptacle attached to the container; and

Figure 19 shows a perspective view of the kit of Figure 18 with the receptacle cover portion in an open position.

[0202] Figures 1 to 3 show a receptacle 10 according to a first embodiment of the present invention. The receptacle 10 comprises a box portion 12 and a cover portion 14 in the form of a lid portion depending from the box portion 12 along a hinge line 16. The cover portion 14 is rotatable about the hinge line 16 between a closed position (shown in Figure 1) and an open position (shown in Figure 3). A top end 18 of the box portion 12 defines a box opening 20 which is covered when the cover portion 14 is in the closed position and uncovered when the cover portion 14 is in the open position. The box portion 12 comprises a closed bottom end 22 opposite the top end 18. As shown in Figure 4, the receptacle 10 is sized to receive a plurality of used aerosol-generating articles 23 within the box portion 12.

[0203] The box portion 12 comprises a box back wall 24, a box front wall 26, a first box side wall 28 and a second box side wall 30. The top edges of these walls together define the box opening 20 at the top end 18 of the box portion 12. A flange 32 extends around part of the box portion 12 at the top end 18 of the box portion 12. When the cover portion 14 is in the closed position the cover portion 14 engages the flange 32 by a snap fit, which forms a closure to retain the cover portion 14 in the closed position.

[0204] The box portion 12 also comprises a box bottom wall (not shown) that forms the closed bottom end 22 of the box portion 12. The closed bottom end 22 of the box portion 12 also forms a bottom end of the receptacle 10. A lid top wall 34 of the cover portion 14 forms a top end of the receptacle 10.

[0205] The receptacle 10 further comprises a clip 36 depending from the top end 18 of the box portion 12 and overlying an outer surface of the first box side wall 28. The clip 36 comprises a first portion 38 extending between a top end 40 of the clip 36 at the top end 18 of the box portion 12 and a free end 42 distal from the top end 40. A second portion (not shown) of the clip 36 is positioned inside the box portion 12 and secured to an inner surface of the first box side wall 28 by an adhesive. The clip 36 is formed from a resilient metal so that the clip 36 is biased towards the first box side wall 28. A bottom edge 44 of the cover portion 14 comprises a recess 46 in which the top end 40 of the clip 36 is received when the cover portion 14 is in the closed position.

[0206] Figure 5 shows a kit 50 comprising the receptacle 10 of Figures 1 to 4 and a container 52 for aerosol-

generating articles. The container 52 is a hinged-lid container comprising a container box portion 54 and a container lid portion 56 depending from the container box portion 54 along a hinge line 58 extending between a container lid back wall 60 and a container box back wall 62. As shown in Figure 5, the clip 36 can be used to attach the receptacle 10 to a first container box side wall 64 of the container 52. Advantageously, the angular profile of the top end 40 of the clip 36 matches the angular profile of the top edge of the first container box side wall 64 so that the container lid portion 56 can still be fully closed when the receptacle 10 is attached to the container 52. Advantageously, configuring the clip 36 for attachment of the receptacle 10 to a side wall of the container 52 results in the box openings of the receptacle 10 and the container 52 having the same orientation, which may facilitate use of the kit 50 by a user. The depth and height of the receptacle 10 matches the depth and height of the container 52 which may further facilitate use of the kit 50 by a user, for example by making the kit 50 easy to hold.

[0207] Figures 6 and 7 show a receptacle 110 in accordance with a second embodiment of the present invention. Figures 8 to 10 show a kit 150 comprising the receptacle 110 and a container 152 for aerosol-generating articles.

[0208] The receptacle 110 comprises a box portion 112 and a cover portion 114 in the form of a lid portion depending from the box portion 112 along a hinge line 116. The cover portion 114 is rotatable about the hinge line 116 between a closed position (shown in Figure 6) and an open position (shown in Figure 10). A bottom end 118 of the box portion 112 defines a box opening 120 which is covered when the cover portion 114 is in the closed position and uncovered when the cover portion 114 is in the open position. The box portion 112 comprises a closed top end 122 opposite the bottom end 118.

[0209] The box portion 112 comprises a box back wall 124, a box front wall 126, a first box side wall 128 and a second box side wall 130. The bottom edges of these walls together define the box opening 120 at the bottom end 118 of the box portion 112. A tab 132 extends from an edge of the cover portion 114 and is configured to engage a corresponding recess 133 in the bottom edge of the box front wall 126 by a snap fit, when the cover portion 114 is in the closed position. The snap fit forms a closure to retain the cover portion 114 in the closed position.

[0210] The box portion 112 also comprises a box top wall 135 that forms the closed top end 122 of the box portion 112. The closed top end 122 of the box portion 112 also forms a top end of the receptacle 110. A lid bottom wall 134 of the cover portion 114 forms a bottom end of the receptacle 110.

[0211] The receptacle 110 further comprises a clip 136 depending from the box portion 112 and overlying an outer surface of the box top wall 135. The clip 136 comprises a first portion 138 extending between a first end 140 and a free end 142 distal from the first end 140. A

second portion (not shown) of the clip 136 is positioned inside the box portion 112 and secured to an inner surface of the box portion 112 by an adhesive. The clip 136 is formed from a resilient metal so that the clip 136 is biased towards the box top wall 135.

[0212] The container 152 is a hinged-lid container comprising a container box portion 154 and a container lid portion 156 depending from the container box portion 154 along a hinge line. As shown in Figures 8 to 10, the clip 136 can be used to attach the receptacle 110 to a container box bottom wall 164 of the container 152 by inserting the clip through an aperture between a bottom edge of a first container box side wall 166 and the container box bottom wall 164. The depth and width of the receptacle 110 matches the depth and width of the container 152 which may facilitate use of the kit 150 by a user, for example by making the kit 150 easy to hold.

[0213] Figures 11 to 13 show a receptacle 210 in accordance with a third embodiment of the present invention. Figures 14 and 15 show a kit 250 comprising the receptacle 210 and a container 252 for aerosol-generating articles.

[0214] The receptacle 210 comprises a box portion 212, a base portion 213 and a cover portion 214 depending from the base portion 213 by a hinge 216. The cover portion 214 is rotatable about the hinge 216 between a closed position (shown in Figures 11 to 14) and an open position (shown in Figure 15). A back end 218 of the box portion 212 defines a box opening 220 which is covered when the cover portion 214 is in the closed position and uncovered when the cover portion 214 is in the open position. The box portion 212 comprises a closed front end 222 opposite the back end 218. As shown in Figure 15, the receptacle 210 is sized to receive a plurality of used aerosol-generating articles 223 within the box portion 212. An inner surface of the cover portion 214 is scalloped to maintain the used aerosol-generating articles 223 in an upright position when the cover portion 214 is in the closed position.

[0215] The box portion 212 comprises a box top wall 226, a first box side wall 228 and a second box side wall 230. The back edges of these walls together define the box opening 220 at the back end 218 of the box portion 212. The box portion 212 also comprises a box front wall 224 that forms the closed front end 222 of the box portion 212.

[0216] The base portion 213 extends from the closed front end 222 of the box portion 212. The base portion 213 comprises a base top wall 215 orthogonal to the closed front end 222 of the box portion 212 and a base bottom wall 217 opposite the base top wall 215.

[0217] The receptacle 210 further comprises a clip 236 depending from the base portion 213 and overlying an outer surface of the base top wall 215. The clip 236 comprises a first portion 238 extending between a first end 240 and a free end 242 distal from the first end 240. A second portion (not shown) of the clip 236 is positioned inside the base portion 213 and secured to an inner sur-

face of the base portion 213 by an adhesive. The clip 236 is formed from a resilient metal so that the clip 236 is biased towards the base top wall 215.

[0218] The container 252 is a hinged-lid container comprising a container box portion 254 and a container lid portion 256 depending from the container box portion 254 along a hinge line. As shown in Figures 14 and 15, the clip 236 can be used to attach the receptacle 210 to a container box bottom wall 264 of the container 252 by inserting the clip through an aperture between a bottom edge of a first container box side wall 266 and the container box bottom wall 264. When the receptacle 210 is attached to the container 252 the closed front end 222 of the receptacle box portion 212 overlies a portion of a container back wall 268 of the container box portion 254.

[0219] Figures 16 to 19 show a receptacle 310 according to a fourth embodiment of the present invention and a kit 350 comprising the receptacle 310 and a container 352 for aerosol-generating articles.

[0220] The receptacle 310 comprises a box portion 312 and a cover portion 314 in the form of a lid portion depending from the box portion 312 along a hinge line 316. The cover portion 314 is rotatable about the hinge line 316 between a closed position (shown in Figures 16 to 18) and an open position (shown in Figure 19). A top end 318 of the box portion 312 defines a box opening 320 which is covered when the cover portion 314 is in the closed position and uncovered when the cover portion 314 is in the open position. The box portion 312 comprises a closed bottom end 322 opposite the top end 318. As shown in Figure 19, the receptacle 310 is sized to receive a plurality of used aerosol-generating articles 323 within the box portion 312.

[0221] The box portion 312 comprises a box back wall 324, a box front wall 326, a first box side wall 328 and a second box side wall 330. The top edges of these walls together define the box opening 320 at the top end 318 of the box portion 312. A tab 332 extends from an edge of the cover portion 314 and is configured to engage a corresponding recess 333 in the top edge of the box front wall 326 by a snap fit, when the cover portion 314 is in the closed position. The snap fit forms a closure to retain the cover portion 314 in the closed position.

[0222] The box portion 312 also comprises a box bottom wall 335 that forms the closed bottom end 322 of the box portion 312.

[0223] The receptacle 310 further comprises a skirt portion 336 extending from the box portion 312 about a periphery of the closed bottom end 322 of the box portion 312. The skirt portion 336 is formed integrally with the box portion 312. The skirt portion 336 defines a cavity 338 for receiving a portion of the container 352.

[0224] The container 352 is a hinged-lid container comprising a container box portion 354 and a container lid portion 356 depending from the container box portion 354 along a hinge line. As shown in Figures 16, 18 and 19, the receptacle 310 may be attached to the container 352 by inserting the container lid portion 356 into the

cavity 338 defined by the skirt portion 336. The container lid portion 356 is retained within the cavity 338 by an interference fit. Advantageously, the shape of the skirt portion 336 corresponds to the shape of the container lid portion 356 so that only the container lid portion 356 is received within the cavity 338 when the receptacle 310 is attached to the container 352. Advantageously, this permits opening and closing of the container lid portion 356 when the receptacle 310 is attached to the container 352. That is, the receptacle 310 moves with the container lid portion 356 when the container lid portion 356 is moved between open and closed positions.

15 Claims

1. A receptacle (10) for storing one or more used aerosol-generating articles (23), the receptacle (10) comprising:

a box portion (12) comprising a closed bottom end (22) and a top end (18) defining a box opening (20), wherein the bottom end (22) is opposite the top end (18);

a cover portion (14) movable with respect to the box portion (12) between a closed position in which the cover portion (14) covers the box opening (20) and an open position in which the box opening (20) is uncovered; and

a clip (36) depending from the top end (18) of the box portion (12) and overlying an outer surface of the box portion (12), wherein the clip (36) comprises a top end (40) at the top end (18) of the box portion (12), and wherein the top end (40) of the clip (36) is non-parallel with the bottom end (22) of the box portion (12).

2. A receptacle (10) according to claim 1, wherein the clip (36) comprises a first portion (38) overlying the outer surface of the box portion (12) and a second portion positioned inside the box portion (12) so that at least a part of the box portion (12) is positioned between the first portion (38) of the clip (36) and the second portion of the clip (36).

3. A receptacle (10) according to claim 1 or 2, wherein the cover portion (14) is a lid portion depending from the top end (18) of the box portion (12) along a hinge line (16).

4. A receptacle (10) according to claim 3, wherein the lid portion comprises a recess (46) in a bottom edge (44) of the lid portion, wherein a portion of the clip (36) is received within the recess (46) when the lid portion is in the closed position.

5. A kit (50) comprising a receptacle (10) according to any preceding claim and a container (52) for aerosol-

generating articles, the container (52) comprising:

a container box portion (54) comprising:

a container box bottom wall; 5
a container box back wall (62) extending from the container box bottom wall;
a container box front wall opposite the container box back wall (62); and 10
first and second container box side walls (64) each extending between the container box back wall (62) and the container box front wall; and

a container lid portion (56) depending from the container box back wall (62) along a hinge line (58); 15
wherein the clip (36) is sized to engage the first container box side wall (64). 20

6. A kit (50) according to claim 5, wherein the clip (36) comprises a top end (40) at the top end of the receptacle box portion (12), wherein the top end (40) of the clip (36) is non-parallel with the bottom end (22) of the box portion (12), wherein a top edge of the first container box side wall (64) is non-parallel with the container box bottom wall, and wherein the top end (40) of the clip (36) is parallel with the top edge of the first container box side wall (64) when the clip (36) is engaged with the first container box side wall (64). 25 30

7. A kit (50) according to claim 5 or 6, wherein the container (52) comprises an inner frame partially positioned within the container box portion (54), and wherein the container (52) is configured to receive the clip (36) between the inner frame and the first container box side wall (64). 35

8. A receptacle (110) for storing one or more used aerosol-generating articles, the receptacle (110) comprising: 40

a box portion (112) comprising a closed first end (122) and a second end (118) defining a box opening (120), wherein the second end (118) is opposite the first end (122); 45
a cover portion (114) movable with respect to the box portion (112) between a closed position in which the cover portion (114) covers the box opening (120) and an open position in which the box opening (120) is uncovered; and
a clip (136) depending from the box portion (112) and overlying an outer surface of the closed first end (122) of the box portion (112), wherein the clip (136) comprises a first portion (138) overlying the outer surface of the closed first end (122) of the receptacle box portion (112) and a second 50 55

portion positioned inside the receptacle box portion (112) so that at least a part of the box portion (112) is positioned between the first portion (138) of the clip (136) and the second portion of the clip (136), and wherein the second portion of the clip (136) is shorter than the first portion (138) of the clip (136).

9. A kit (150) comprising a receptacle (110) according to claim 8 and a container (152) for aerosol-generating articles, the container (152) comprising a container box portion (154) comprising:

a container box bottom wall (164);
a container box back wall extending from the container box bottom wall (164);
a container box front wall opposite the container box back wall;
first and second container box side walls (166) each extending between the container box back wall and the container box front wall; and
an aperture between a bottom edge of the first container box side wall (166) and the container box bottom wall (164), the aperture configured to receive the clip (136) so that the clip (136) engages the container box bottom wall (164).

10. A receptacle (210) for storing one or more used aerosol-generating articles, the receptacle (210) comprising:

a box portion (212) comprising a closed front end (222) and a back end (218) defining a box opening (220), wherein the back end (218) is opposite the front end (222);
a cover portion (214) movable with respect to the box portion (212) between a closed position in which the cover portion (214) covers the box opening (220) and an open position in which the box opening (220) is uncovered;
a base portion (213) extending from the closed front end (222) of the box portion (212), the base portion (213) comprising a top wall (215) orthogonal to the closed front end (222) of the box portion (212) and a bottom wall (217) opposite the top wall (215); and
a clip (236) depending from the base portion (213) and overlying an outer surface of the top wall (215).

11. A kit (250) comprising a receptacle (210) according to claim 10 and a container (252) for aerosol-generating articles, the container (252) comprising:

a container box portion (254) comprising a closed bottom end and a top end defining a container box opening, wherein the top end is opposite the bottom end; and

- a container lid portion (256) depending from a back wall of the container box portion (254) along a hinge line extending at least partially along a top edge of the back wall of the container box portion (254);
 wherein the container box portion (254) comprises an aperture configured to receive the clip (236) so that the clip (236) engages the closed bottom end of the container box portion (254), and wherein the closed front end (222) of the receptacle box portion (212) overlies a portion of the back wall of the container box portion (254) when the clip (236) is engaged with the closed bottom end of the container box portion (254).
12. A kit (250) according to claim 11, wherein the container box portion (254) has a first height extending between the hinge line and the closed bottom end of the container box portion (254), wherein the receptacle box portion (212) has a second height extending between a top of the receptacle box portion (212) and a bottom of the receptacle box portion (212) in a direction parallel to the first height when the clip (236) is engaged with the closed bottom end of the container box portion (254), and wherein the second height is the equal to or greater than the first height.
13. A kit (250) according to claim 12, wherein the container lid portion (256) has a third height extending between the hinge line and a closed top end of the container lid portion (256), and wherein a distance between the top of the receptacle box portion (212) and the hinge line is equal to or greater than the third height when the clip (236) is engaged with the closed bottom end of the container box portion (254).
14. A kit (250) according to claim 13, wherein the base portion (213) comprises a top surface and an opposite bottom surface, wherein the clip (236) overlies the top surface of the base portion (213), and wherein a height of the base portion (213) between the top surface and the bottom surface is equal to or greater than the third height of the container lid portion (256).
15. A receptacle (310) for storing one or more used aerosol-generating articles, the receptacle (310) comprising:
- a box portion (312) comprising a closed bottom end (322) and a top end (318) defining a box opening (320), wherein the bottom end (322) is opposite the top end (318);
 a cover portion (314) movable with respect to the box portion (312) between a closed position in which the cover portion (314) covers the box opening (320) and an open position in which the box opening (320) is uncovered; and
- a skirt portion (336) extending from the box portion (312) about a periphery of the bottom end (322) of the box portion (312), wherein the skirt portion (336) defines a cavity (338) for receiving a portion of a container (352) of aerosol-generating articles.
16. A kit (350) comprising a receptacle (310) according to claim 15 and a container (352) for aerosol-generating articles, the container (352) comprising a container box portion (354) and a container lid portion (356) depending from the container box portion (354) along a hinge line, wherein the cavity (338) is configured to receive at least part of the container lid portion (356) by an interference fit.

Patentansprüche

1. Aufnahme (10) zur Lagerung eines oder mehrerer gebrauchter aerosol erzeugender Artikel (23), wobei die Aufnahme (10) aufweist:
- ein Schachtelteil (12), aufweisend ein geschlossenes unteres Ende (22) und ein oberes Ende (18), das eine Schachtelöffnung (20) definiert, wobei das untere Ende (22) dem oberen Ende (18) gegenüber liegt;
- ein Abdeckungsteil (14), das in Bezug auf das Schachtelteil (12) zwischen einer geschlossenen Stellung, in der das Abdeckungsteil (14) die Schachtelöffnung (20) abdeckt, und einer geöffneten Stellung, in der die Schachtelöffnung (20) unbedeckt ist, beweglich ist; und
- eine Klammer (36), die von dem oberen Ende (18) des Schachtelteils (12) abhängig ist und über einer Außenfläche des Schachtelteils (12) liegt, wobei die Klammer (36) ein oberes Ende (40) an dem oberen Ende (18) des Schachtelteils (12) aufweist, und wobei das obere Ende (40) der Klammer (36) nicht parallel zu dem unteren Ende (22) des Schachtelteils (12) ist.
2. Aufnahme (10) nach Anspruch 1, wobei die Klammer (36) einen ersten, über der Außenfläche des Schachtelteils (12) liegenden Abschnitt (38) und einen zweiten, innerhalb des Schachtelteils (12) positionierten Abschnitt aufweist, sodass zumindest ein Teil des Schachtelteils (12) zwischen dem ersten Abschnitt (38) der Klammer (36) und dem zweiten Abschnitt der Klammer (36) positioniert ist.
3. Aufnahme (10) nach Anspruch 1 oder 2, wobei der Abdeckungsteil (14) ein Deckelteil ist, der von dem oberen Ende (18) des Schachtelteils (12) entlang einer Scharnierlinie (16) abhängig ist.
4. Aufnahme (10) nach Anspruch 3, wobei der De-

- ckelteil eine Aussparung (46) in einer unteren Kante (44) des Deckelteils aufweist, wobei ein Teil der Klammer (36) in der Aussparung (46) aufgenommen ist, wenn sich der Deckelteil in der geschlossenen Stellung befindet. 5
5. Kit (50), umfassend ein Aufnahme (10) nach einem der vorhergehenden Ansprüche und einen Behälter (52) für aerosolerzeugende Artikel, wobei der Behälter (52) aufweist: 10
- ein Behälter-Schachtelteil (54), aufweisend:
- eine Behälterschachtel-Bodenwand; 15
- eine Behälterschachtel-Rückwand (62), die sich von der Behälterschachtel-Bodenwand aus erstreckt;
- eine Behälterschachtel-Vorderwand gegenüber der Behälterschachtel-Rückwand (62); und 20
- erste und zweite Behälterschachtel-Seitenwände (64), die sich jeweils zwischen der Behälterschachtel-Rückwand (62) und der Behälterschachtel-Vorderwand erstrecken; und 25
- ein Behälterschachtel-Deckelteil (56), das von der Behälterschachtel-Rückwand (62) entlang einer Scharnierlinie (58) abhängig ist; wobei die Klammer (36) für den Eingriff mit der ersten Behälterschachtel-Seitenwand (64) bemessen ist. 30
6. Kit (50) nach Anspruch 5, wobei die Klammer (36) ein oberes Ende (40) am oberen Ende des Aufnahme-Schachtelteils (12) aufweist, wobei das obere Ende (40) der Klammer (36) nicht parallel zu dem unteren Ende (22) des Schachtelteils (12) ist, wobei eine obere Kante der ersten Behälterschachtel-Seitenwand (64) nicht parallel zu der Behälterschachtel-Bodenwand ist, und wobei das obere Ende (40) der Klammer (36) parallel zu der oberen Kante der ersten Behälterschachtel-Seitenwand (64) ist, wenn die Klammer (36) mit der ersten Behälterschachtel-Seitenwand (64) in Eingriff ist. 35 40 45
7. Kit (50) nach Anspruch 5 oder 6, wobei der Behälter (52) einen Innenrahmen aufweist, der teilweise innerhalb des Behälter-Schachtelteils (54) positioniert ist, und wobei der Behälter (52) zur Aufnahme der Klammer (36) zwischen dem Innenrahmen und der ersten Behälterschachtel-Seitenwand (64) ausgelegt ist. 50
8. Aufnahme (110) zur Lagerung eines oder mehrerer gebrauchter aerosolerzeugender Artikel, wobei die Aufnahme (110) aufweist: 55

ein Schachtelteil (112), das ein geschlossenes erstes Ende (122) und ein zweites Ende (118) aufweist, das eine Schachtelöffnung (120) definiert, wobei das zweite Ende (118) dem ersten Ende (122) gegenüber liegt;

ein Abdeckungsteil (114), das in Bezug auf das Schachtelteil (112) zwischen einer geschlossenen Stellung, in der das Abdeckungsteil (114) die Schachtelöffnung (120) abdeckt, und einer geöffneten Stellung, in der die Schachtelöffnung (120) unbedeckt ist, beweglich ist; und

eine Klammer (136), die von dem Schachtelteil (112) abhängig ist und eine Außenfläche des geschlossenen ersten Endes (122) des Schachtelteils (112) überlagert, wobei die Klammer (136) einen ersten Abschnitt (138) aufweist, der über der Außenfläche des geschlossenen ersten Endes (122) des Aufnahme-Schachtelteils (112) liegt, und einen zweiten Abschnitt, der innerhalb des Aufnahme-Schachtelteils (112) positioniert ist, sodass zumindest ein Teil des Schachtelteils (112) zwischen dem ersten Abschnitt (138) der Klammer (136) und dem zweiten Abschnitt der Klammer (136) positioniert ist, und wobei der zweite Abschnitt der Klammer (136) kürzer ist als der erste Abschnitt (138) der Klammer (136).

9. Kit (150), aufweisend eine Aufnahme (110) nach Anspruch 8 und einen Behälter (152) für aerosolerzeugende Artikel, wobei der Behälter (152) ein Behälter-Schachtelteil (154) aufweist, das aufweist:

eine Behälterschachtel-Bodenwand (164);

eine Behälterschachtel-Rückwand, die sich von der Behälterschachtel-Bodenwand (164) aus erstreckt;

eine Behälterschachtel-Vorderwand gegenüber der Behälterschachtel-Rückwand;

erste und zweite Behälterschachtel-Seitenwände (166), die sich jeweils zwischen der Behälterschachtel-Rückwand und der Behälterschachtel-Vorderwand erstrecken; und

eine Aussparung zwischen einer unteren Kante der ersten Behälterschachtel-Seitenwand (166) und der Behälterschachtel-Bodenwand (164), wobei die Aussparung zur Aufnahme der Klammer (136) ausgelegt ist, sodass die Klammer (136) mit der Behälterschachtel-Bodenwand (164) in Eingriff kommt.

10. Aufnahme (210) zur Lagerung eines oder mehrerer gebrauchter aerosolerzeugender Artikel, wobei die Aufnahme (210) aufweist:

ein Schachtelteil (212), aufweisend ein geschlossenes vorderes Ende (222) und ein hinteres Ende (218), das eine Schachtelöffnung

- (220) definiert, wobei das hintere Ende (218) dem vorderen Ende (222) gegenüber liegt; ein Abdeckungsteil (214), das in Bezug auf das Schachtelteil (212) zwischen einer geschlossenen Stellung, in der das Abdeckungsteil (214) die Schachtelöffnung (220) abdeckt, und einer geöffneten Stellung, in der die Schachtelöffnung (220) unbedeckt ist, beweglich ist; ein Basisteil (213), das sich von dem geschlossenen vorderen Ende (222) des Schachtelteils (212) erstreckt, wobei das Basisteil (213) eine obere Wand (215) orthogonal zu dem geschlossenen vorderen Ende (222) des Schachtelteils (212) und eine untere Wand (217) gegenüber der oberen Wand (215) aufweist; und eine Klammer (236), die von dem Basisteil (213) abhängig ist und über einer Außenfläche der oberen Wand (215) liegt.
11. Kit (250), umfassend ein Aufnahme (210) nach Anspruch 10 und einen Behälter (252) für aerosolerzeugende Artikel, wobei der Behälter (252) aufweist:
- ein Behälter-Schachtelteil (254), das ein geschlossenes unteres Ende und ein oberes Ende aufweist, das eine Behälterschachtelöffnung definiert, wobei das obere Ende dem unteren Ende gegenüberliegt; und
- ein Behälterdeckelteil (256), das von einer Rückwand des Behälter-Schachtelteils (254) entlang einer Scharnierlinie abhängig ist, die sich zumindest teilweise entlang einer oberen Kante der Rückwand des Behälter-Schachtelteils (254) erstreckt; wobei der Behälter-Schachtelteil (254) eine Aussparung aufweist, die zur Aufnahme der Klammer (236) ausgelegt ist, sodass die Klammer (236) in das geschlossene untere Ende des Behälter-Schachtelteils (254) eingreift, und wobei das geschlossene vordere Ende (222) des Aufnahme-Schachtelteils (212) über einem Teil der Rückwand des Behälter-Schachtelteils (254) liegt, wenn die Klammer (236) mit dem geschlossenen unteren Ende des Behälter-Schachtelteils (254) in Eingriff ist.
12. Kit (250) nach Anspruch 11, wobei der Behälter-Schachtelteil (254) eine erste Höhe aufweist, die sich zwischen der Scharnierlinie und dem geschlossenen unteren Ende des Behälter-Schachtelteils (254) erstreckt, wobei der Aufnahme-Schachtelteil (212) eine zweite Höhe aufweist, die sich zwischen einer Oberseite des Behälter-Schachtelteils (212) und einer Unterseite des Behälter-Schachtelteils (212) in einer Richtung parallel zur ersten Höhe erstreckt, wenn die Klammer (236) mit dem geschlossenen unteren Ende des Behälter-Schachtelteils (254) in Eingriff ist, und wobei die zweite Höhe gleich oder größer als die erste Höhe ist.
13. Kit (250) nach Anspruch 12, wobei der Behälterdeckelteil (256) eine dritte Höhe hat, die sich zwischen der Scharnierlinie und einem geschlossenen oberen Ende des Behälterdeckelteils (256) erstreckt, und wobei ein Abstand zwischen der Oberseite des Aufnahme-Schachtelteils (212) und der Scharnierlinie gleich oder größer als die dritte Höhe ist, wenn die Klammer (236) mit dem geschlossenen unteren Ende des Behälter-Schachtelteils (254) in Eingriff ist.
14. Kit (250) nach Anspruch 13, wobei der Basisteil (213) eine obere Fläche und eine gegenüberliegende untere Fläche aufweist, wobei die Klammer (236) über der oberen Fläche des Basisteils (213) liegt, und wobei eine Höhe des Basisteils (213) zwischen der oberen Fläche und der unteren Fläche gleich oder größer als die dritte Höhe des Behälterdeckelteils (256) ist.
15. Aufnahme (310) zur Lagerung eines oder mehrerer gebrauchter aerosolerzeugender Artikel, wobei die Aufnahme (310) aufweist:
- ein Schachtelteil (312), aufweisend ein geschlossenes unteres Ende (322) und ein oberes Ende (318), das eine Schachtelöffnung (320) definiert, wobei das untere Ende (322) dem oberen Ende (318) gegenüber liegt;
- ein Abdeckungsteil (314), das in Bezug auf das Schachtelteil (312) zwischen einer geschlossenen Stellung, in der das Abdeckungsteil (314) die Schachtelöffnung (320) abdeckt, und einer geöffneten Stellung, in der die Schachtelöffnung (320) unbedeckt ist, beweglich ist; und
- einen Schürzenabschnitt (336), der sich von dem Schachtelteil (312) um einen Umfang des unteren Endes (322) des Schachtelteils (312) erstreckt, wobei der Schürzenabschnitt (336) einen Hohlraum (338) zur Aufnahme eines Teils eines Behälters (352) für aerosolerzeugende Artikel definiert.
16. Kit (350), aufweisend eine Aufnahme (310) nach Anspruch 15 und einen Behälter (352) für aerosolerzeugende Artikel, wobei der Behälter (352) ein Behälter-Schachtelteil (354) und ein Behälterdeckelteil (356) aufweist, das von dem Behälter-Schachtelteil (354) entlang einer Scharnierlinie abhängig ist, wobei der Hohlraum (338) zur Aufnahme zumindest eines Teils des Behälterdeckelteils (356) durch eine Presspassung ausgebildet ist.

Revendications

1. Réceptacle (10) destiné à stocker un ou plusieurs

articles de génération d'aérosols utilisés (23), le réceptacle (10) comprenant :

- une partie étui (12) comprenant une extrémité inférieure fermée (22) et une extrémité supérieure (18) définissant une ouverture d'étui (20), dans lequel l'extrémité inférieure (22) est opposée à l'extrémité supérieure (18) ;
 une partie d'enveloppe (14) mobile par rapport à la partie étui (12) entre une position fermée dans laquelle la partie d'enveloppe (14) recouvre l'ouverture d'étui (20) et une position ouverte dans laquelle l'ouverture d'étui (20) est découverte ; et
 une pince (36) dépendant de l'extrémité supérieure (18) de la partie étui (12) et recouvrant une surface extérieure de la partie étui (12), dans lequel la pince (36) comprend une extrémité supérieure (40) au niveau de l'extrémité supérieure (18) de la partie étui (12), et dans lequel l'extrémité supérieure (40) de la pince (36) n'est pas parallèle à l'extrémité inférieure (22) de la partie étui (12).
2. Réceptacle (10) selon la revendication 1, dans lequel la pince (36) comprend une première partie (38) recouvrant la surface extérieure de la partie étui (12) et une deuxième partie positionnée à l'intérieur de la partie étui (12) de sorte qu'au moins une portion de la partie étui (12) est positionnée entre la première partie (38) de la pince (36) et la deuxième partie de la pince (36).
3. Réceptacle (10) selon la revendication 1 ou 2, dans lequel la partie d'enveloppe (14) est une partie de couvercle dépendant de l'extrémité supérieure (18) de la partie étui (12) le long d'une ligne d'articulation (16) .
4. Réceptacle (10) selon la revendication 3, dans lequel la partie de couvercle comprend un évidement (46) dans un bord inférieur (44) de la partie de couvercle, dans lequel une partie de la pince (36) est reçue à l'intérieur de l'évidement (46) lorsque la partie de couvercle est dans la position fermée.
5. Kit (50) comprenant un réceptacle (10) selon l'une quelconque des revendications précédentes et un récipient (52) pour des articles de génération d'aérosol, le récipient (52) comprenant :
- une partie étui de récipient (54) comprenant :
- une paroi inférieure d'étui de récipient ;
 une paroi arrière d'étui de récipient (62) s'étendant depuis la paroi inférieure d'étui de récipient ;
 une paroi avant d'étui de récipient opposée

à la paroi arrière d'étui de récipient (62) ; et des première et deuxième parois latérales d'étui de récipient (64) s'étendant chacune entre la paroi arrière d'étui de récipient (62) et la paroi avant d'étui de récipient ; et

une partie de couvercle de récipient (56) dépendant de la paroi arrière d'étui de récipient (62) le long d'une ligne d'articulation (58) ; dans lequel la pince (36) est dimensionnée pour venir en prise avec la première paroi latérale d'étui de récipient (64).

6. Kit (50) selon la revendication 5, dans lequel la pince (36) comprend une extrémité supérieure (40) au niveau de l'extrémité supérieure de la partie étui de réceptacle (12), dans lequel l'extrémité supérieure (40) de la pince (36) n'est pas parallèle à l'extrémité inférieure (22) de la partie étui (12), dans lequel un bord supérieur de la première paroi latérale d'étui de récipient (64) n'est pas parallèle à la paroi inférieure d'étui de récipient, et dans lequel l'extrémité supérieure (40) de la pince (36) est parallèle au bord supérieur de la première paroi latérale d'étui de récipient (64) lorsque la pince (36) vient en prise avec la première paroi latérale d'étui de récipient (64).
7. Kit (50) selon la revendication 5 ou 6, dans lequel le récipient (52) comprend un cadre intérieur partiellement positionné à l'intérieur de la partie étui de récipient (54), et dans lequel le récipient (52) est configuré pour recevoir la pince (36) entre le cadre intérieur et la première paroi latérale d'étui de récipient (64).
8. Réceptacle (110) destiné à stocker un ou plusieurs articles de génération d'aérosols utilisés, le réceptacle (110) comprenant :

une partie étui (112) comprenant une première extrémité fermée (122) et une deuxième extrémité (118) définissant une ouverture d'étui (120), dans lequel la deuxième extrémité (118) est opposée à la première extrémité (122) ;
 une partie d'enveloppe (114) mobile par rapport à la partie étui (112) entre une position fermée dans laquelle la partie d'enveloppe (114) recouvre l'ouverture d'étui (120) et une position ouverte dans laquelle l'ouverture d'étui (120) est découverte ; et
 une pince (136) dépendant de la partie étui (112) et recouvrant une surface extérieure de la première extrémité fermée (122) de la partie étui (112), dans lequel la pince (136) comprend une première partie (138) recouvrant la surface extérieure de la première extrémité fermée (122) de la partie étui de réceptacle (112) et une deuxième partie positionnée à l'intérieur de la

partie étui de réceptacle (112) de sorte qu'au moins une portion de la partie étui (112) est positionnée entre la première partie (138) de la pince (136) et la deuxième partie de la pince (136), et dans lequel la deuxième partie de la pince (136) est plus courte que la première partie (138) de la pince (136).

9. Kit (150) comprenant un réceptacle (110) selon la revendication 8 et un récipient (152) pour des articles de génération d'aérosol, le récipient (152) comprenant une partie étui de récipient (154) comprenant :

une paroi inférieure d'étui de récipient (164) ;
une paroi arrière d'étui de récipient s'étendant depuis la paroi inférieure d'étui de récipient (164) ;

une paroi avant d'étui de récipient opposée à la paroi arrière d'étui de récipient ;

des première et deuxième parois latérales d'étui de récipient (166) s'étendant chacune entre la paroi arrière d'étui de récipient et la paroi avant d'étui de récipient ; et

une ouverture entre un bord inférieur de la première paroi latérale d'étui de récipient (166) et la paroi inférieure d'étui de récipient (164), l'ouverture étant configurée pour recevoir la pince (136) de sorte que la pince (136) vient en prise avec la paroi inférieure d'étui de récipient (164).

10. Réceptacle (210) destiné à stocker un ou plusieurs articles de génération d'aérosols utilisés, le réceptacle (210) comprenant :

une partie étui (212) comprenant une extrémité avant fermée (222) et une extrémité arrière (218) définissant une ouverture d'étui (220), dans lequel l'extrémité arrière (218) est opposée à l'extrémité avant (222) ;

une partie d'enveloppe (214) mobile par rapport à la partie étui (212) entre une position fermée dans laquelle la partie d'enveloppe (214) recouvre l'ouverture d'étui (220) et une position ouverte dans laquelle l'ouverture d'étui (220) est découverte ;

une partie de base (213) s'étendant depuis l'extrémité avant fermée (222) de la partie étui (212), la partie de base (213) comprenant une paroi supérieure (215) orthogonale à l'extrémité avant fermée (222) de la partie étui (212) et une paroi inférieure (217) opposée à la paroi supérieure (215) ; et

une pince (236) dépendant de la partie de base (213) et recouvrant une surface extérieure de la paroi supérieure (215).

11. Kit (250) comprenant un réceptacle (210) selon la

revendication 10 et un récipient (252) pour des articles de génération d'aérosol, le récipient (252) comprenant :

une partie étui de récipient (254) comprenant une extrémité inférieure fermée et une extrémité supérieure définissant une ouverture d'étui de récipient, dans lequel l'extrémité supérieure est opposée à l'extrémité inférieure ; et

une partie de couvercle de récipient (256) dépendant d'une paroi arrière de la partie étui de récipient (254) le long d'une ligne d'articulation s'étendant au moins partiellement le long d'un bord supérieur de la paroi arrière de la partie étui de récipient (254) ;

dans lequel la partie étui de récipient (254) comprend une ouverture configurée pour recevoir la pince (236) de sorte que la pince (236) vient en prise avec l'extrémité inférieure fermée de la partie étui de récipient (254), et dans lequel l'extrémité avant fermée (222) de la partie étui de réceptacle (212) recouvre une partie de la paroi arrière de la partie étui de récipient (254) lorsque la pince (236) vient en prise avec l'extrémité inférieure fermée de la partie étui de récipient (254).

12. Kit (250) selon la revendication 11, dans lequel la partie étui de récipient (254) a une première hauteur s'étendant entre la ligne d'articulation et l'extrémité inférieure fermée de la partie étui de récipient (254), dans lequel la partie étui de réceptacle (212) a une deuxième hauteur s'étendant entre une partie supérieure de la partie étui de réceptacle (212) et une partie inférieure de la partie étui de réceptacle (212) dans une direction parallèle à la première hauteur lorsque la pince (236) vient en prise avec l'extrémité inférieure fermée de la partie étui de réceptacle (254), et dans lequel la deuxième hauteur est égale ou supérieure à la première hauteur.

13. Kit (250) selon la revendication 12, dans lequel la partie de couvercle de récipient (256) a une troisième hauteur s'étendant entre la ligne d'articulation et une extrémité supérieure fermée de la partie de couvercle de récipient (256), et dans lequel une distance entre la partie supérieure de la partie étui de réceptacle (212) et la ligne d'articulation est égale ou supérieure à la troisième hauteur lorsque la pince (236) vient en prise avec l'extrémité inférieure fermée de la partie étui de récipient (254) .

14. Kit (250) selon la revendication 13, dans lequel la partie de base (213) comprend une surface supérieure et une surface inférieure opposée, dans lequel la pince (236) recouvre la surface supérieure de la partie de base (213), et dans lequel une hauteur de la partie de base (213) entre la surface supérieure

et la surface inférieure est égale ou supérieure à la troisième hauteur de la partie de couvercle de récipient (256).

15. Réceptacle (310) destiné à stocker un ou plusieurs articles de génération d'aérosols utilisés, le réceptacle (310) comprenant :

une partie étui (312) comprenant une extrémité inférieure fermée (322) et une extrémité supérieure (318) définissant une ouverture d'étui (320), dans lequel l'extrémité inférieure (322) est opposée à l'extrémité supérieure (318) ;
 une partie d'enveloppe (314) mobile par rapport à la partie étui (312) entre une position fermée dans laquelle la partie d'enveloppe (314) recouvre l'ouverture d'étui (320) et une position ouverte dans laquelle l'ouverture d'étui (320) est découverte ; et
 une partie de jupe (336) s'étendant depuis la partie étui (312) autour d'une périphérie de l'extrémité inférieure (322) de la partie étui (312), dans lequel la partie de jupe (336) définit une cavité (338) pour recevoir une partie d'un récipient (352) d'articles de génération d'aérosol.

16. Kit (350) comprenant un réceptacle (310) selon la revendication 15 et un récipient (352) pour des articles de génération d'aérosol, le récipient (352) comprenant une partie étui de récipient (354) et une partie de couvercle de récipient (356) dépendant de la partie étui de récipient (354) le long d'une ligne d'articulation, dans lequel la cavité (338) est configurée pour recevoir au moins une portion de la partie de couvercle de récipient (356) par un ajustement serré.

40

45

50

55

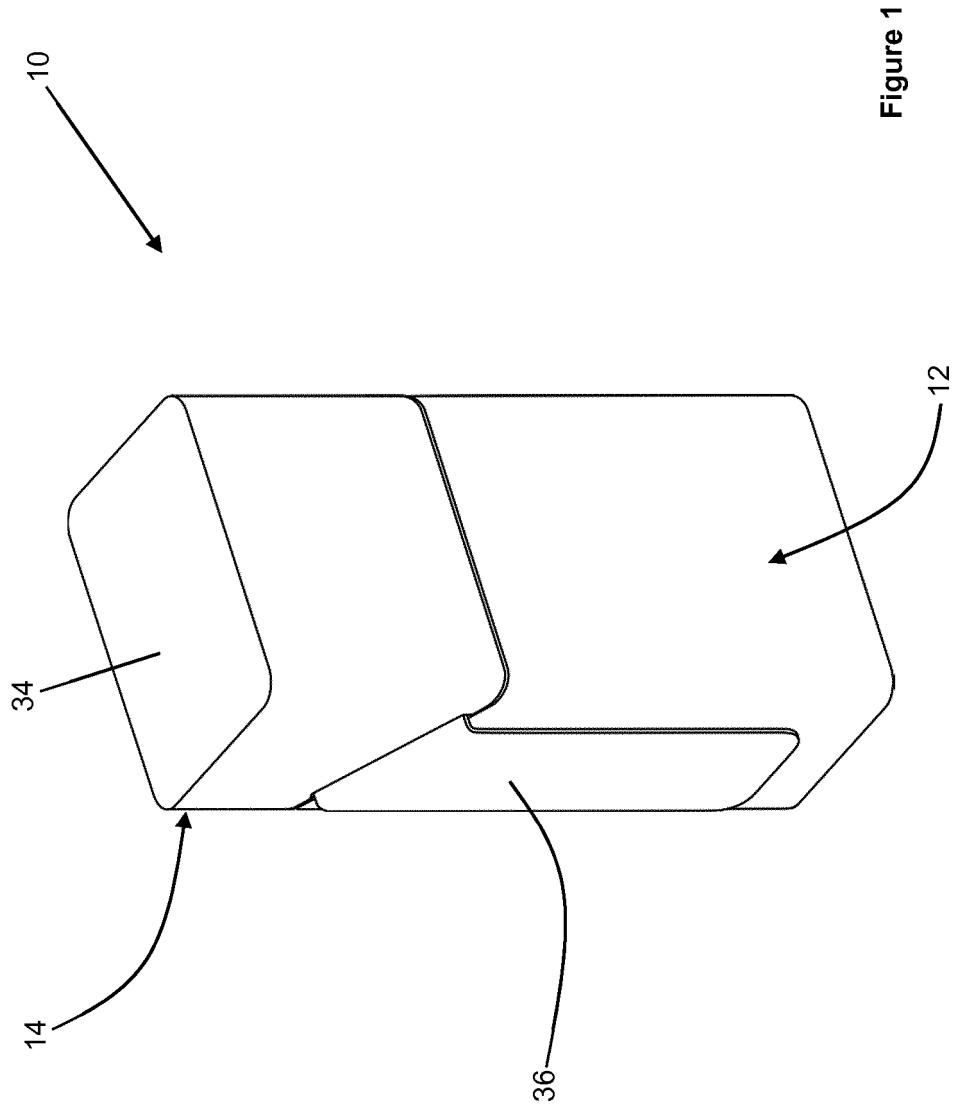


Figure 1

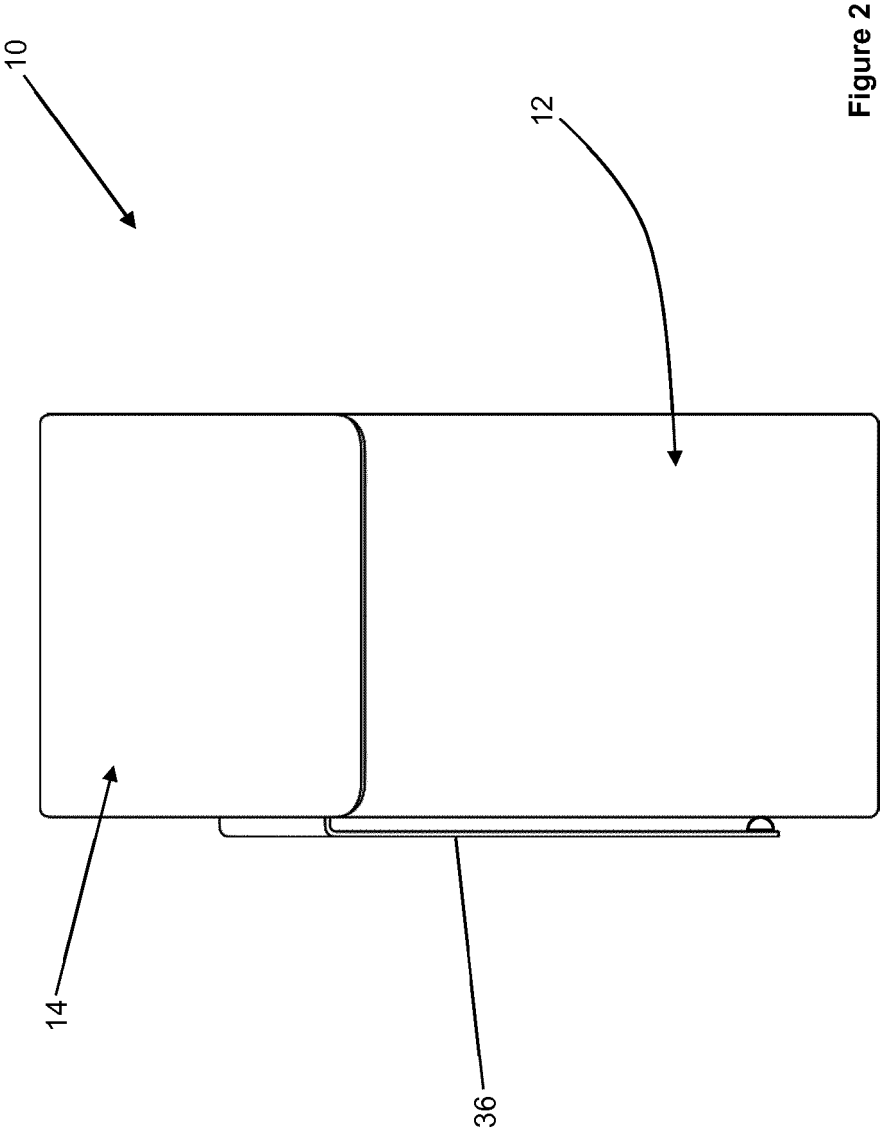


Figure 2

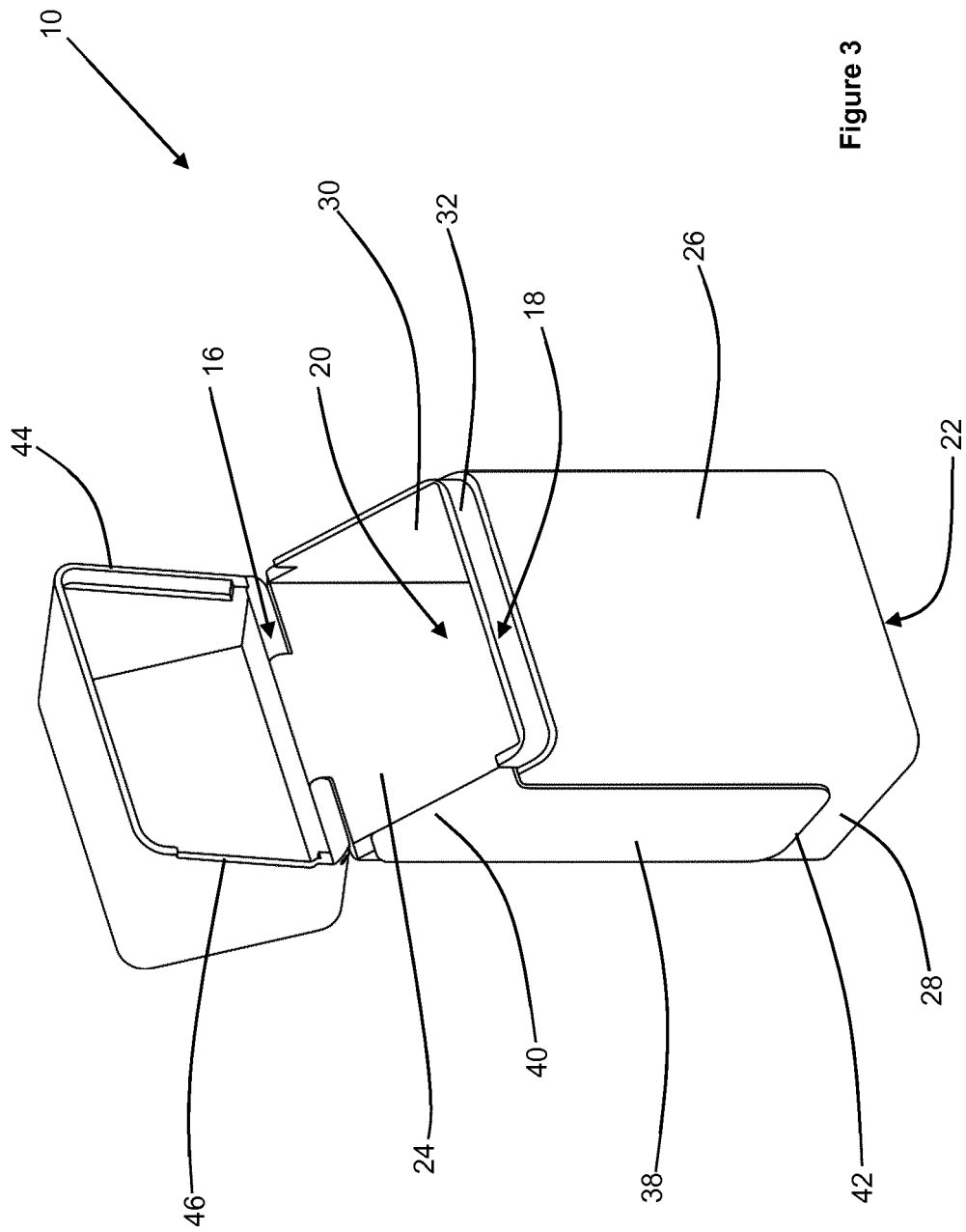


Figure 3

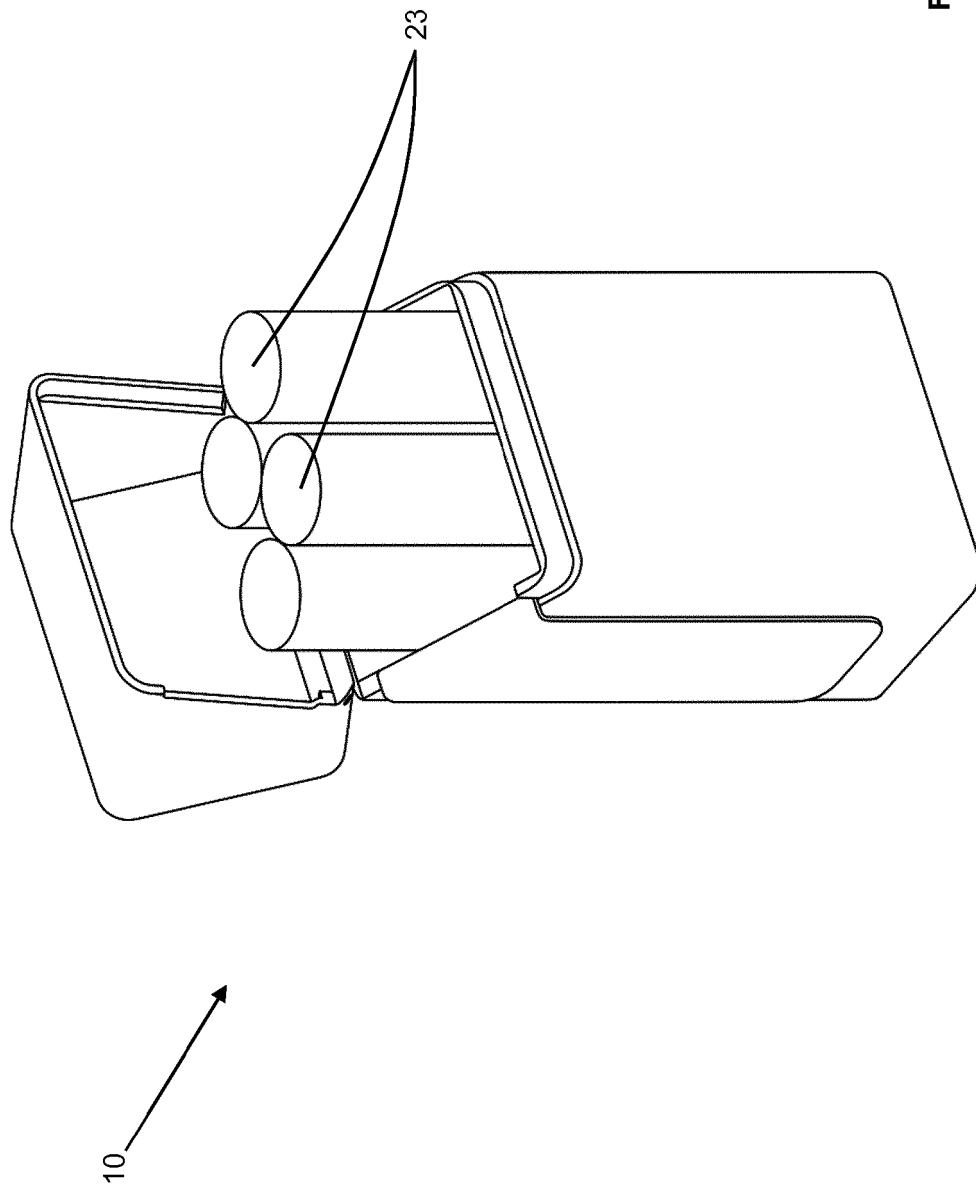


Figure 4

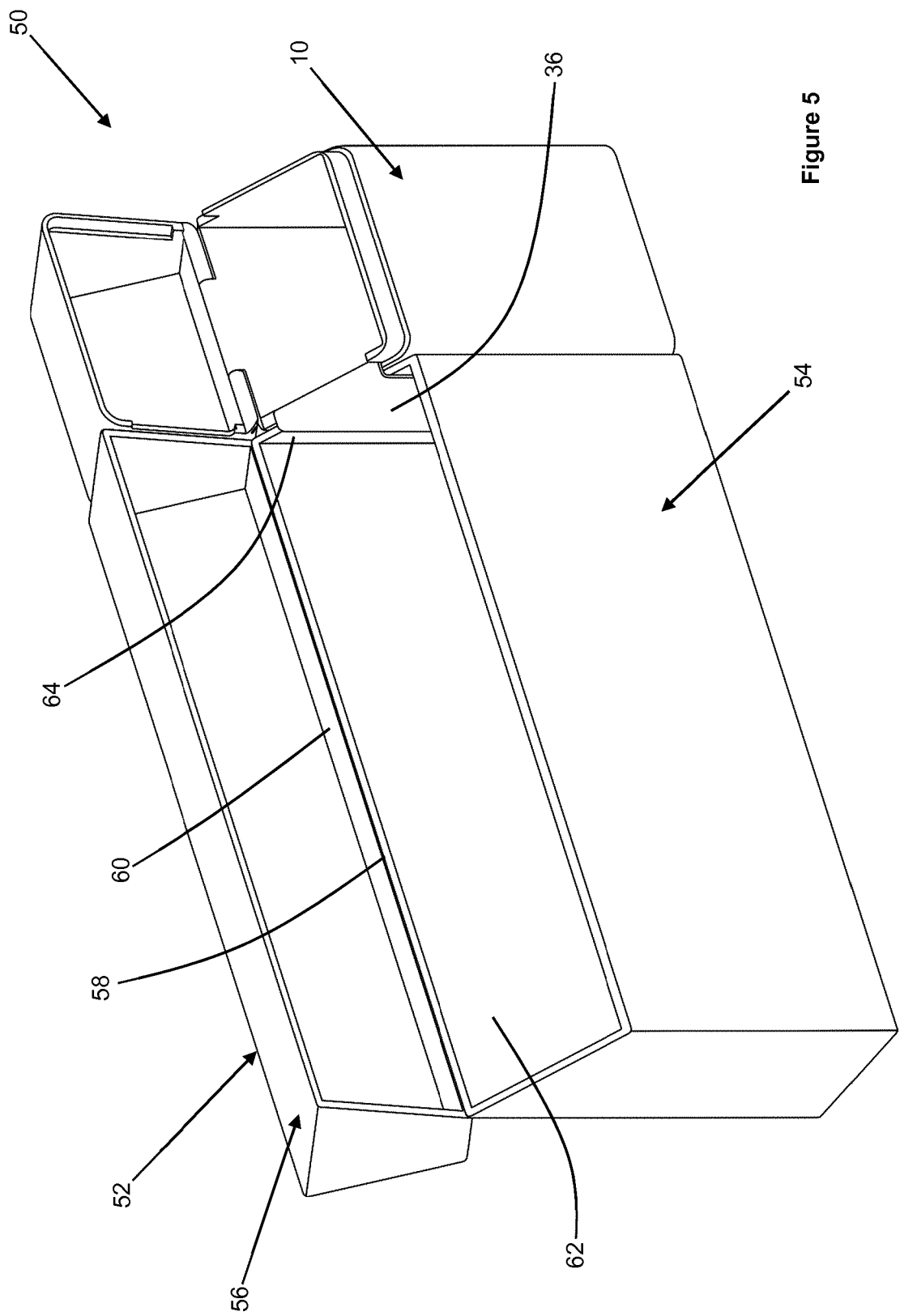


Figure 5

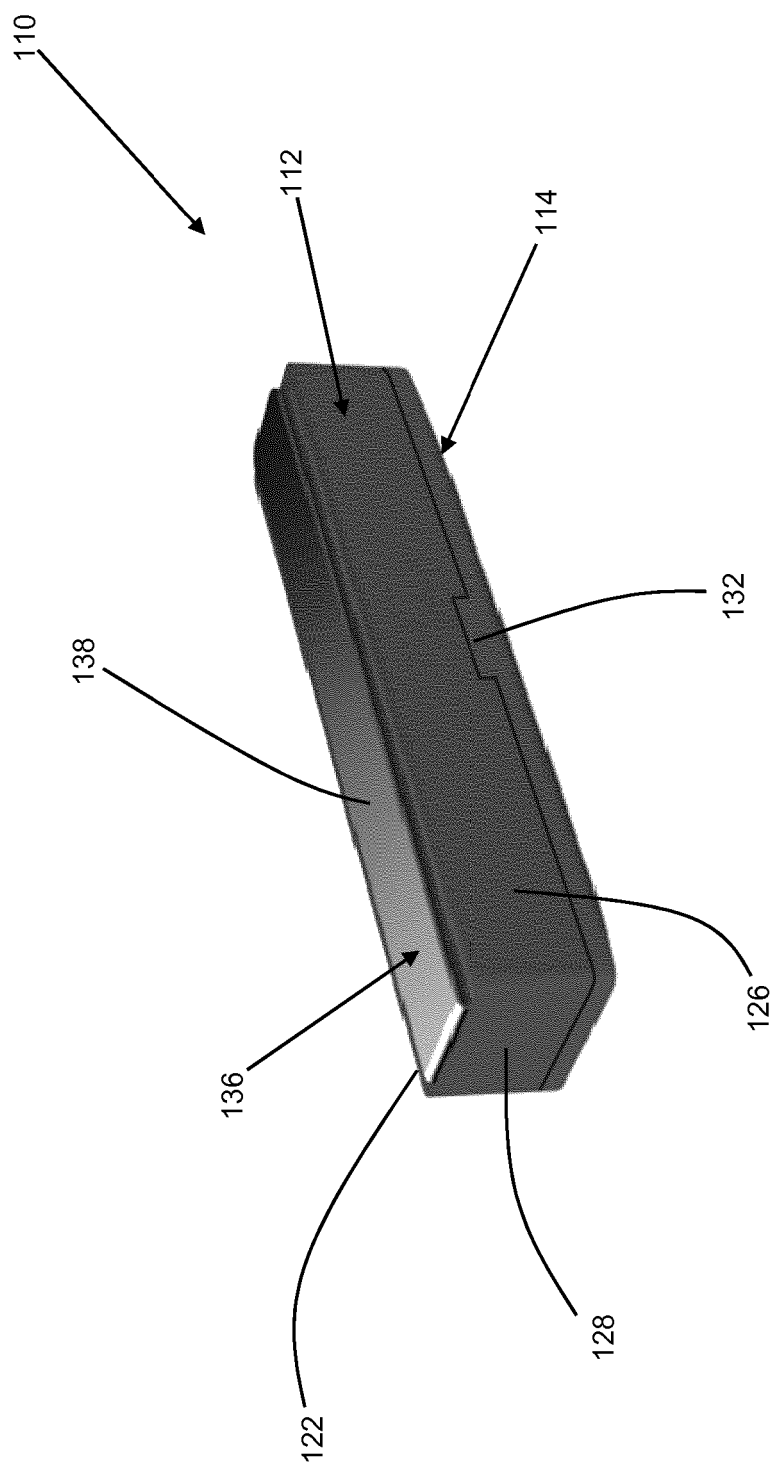


Figure 6

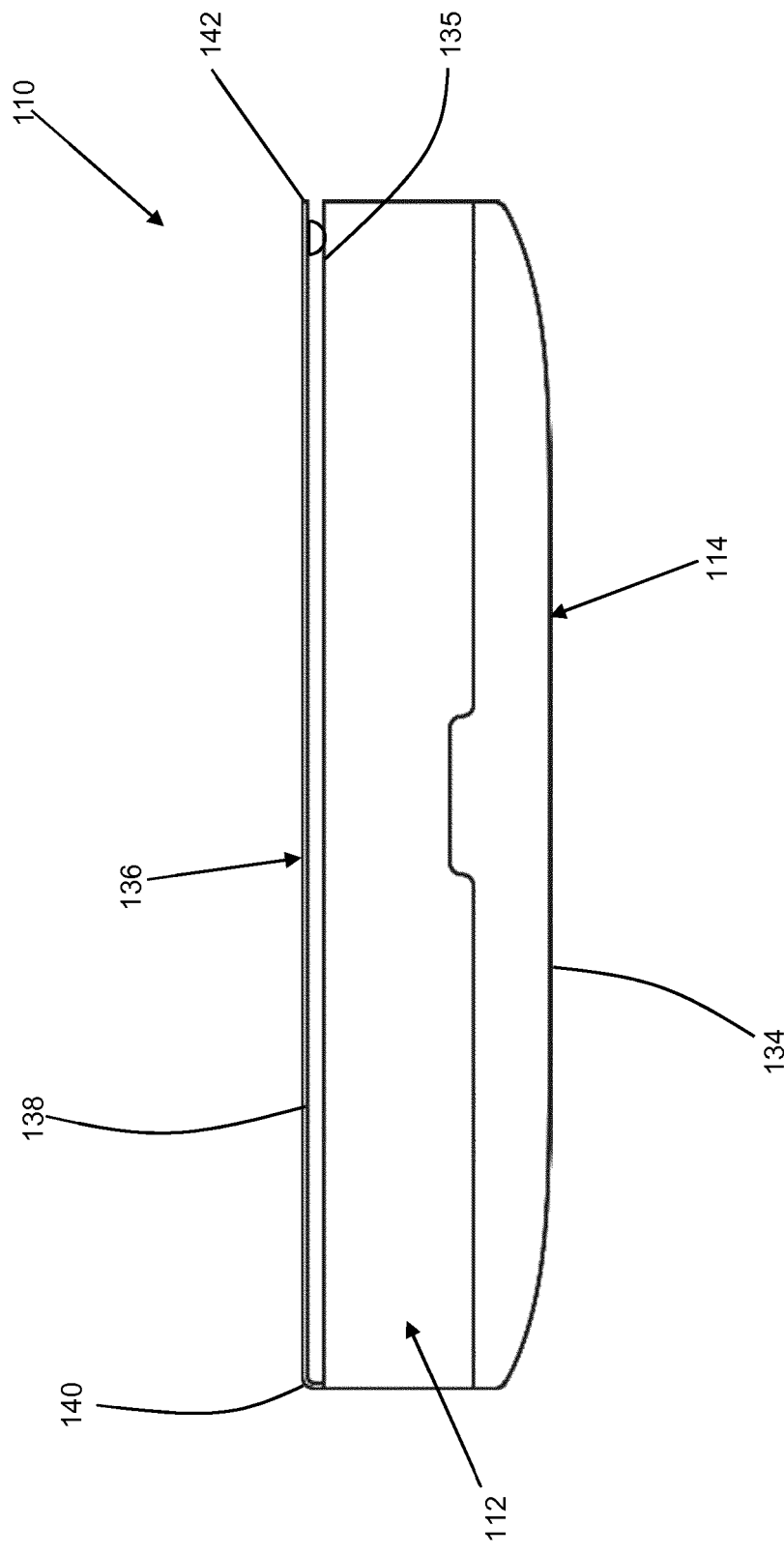


Figure 7

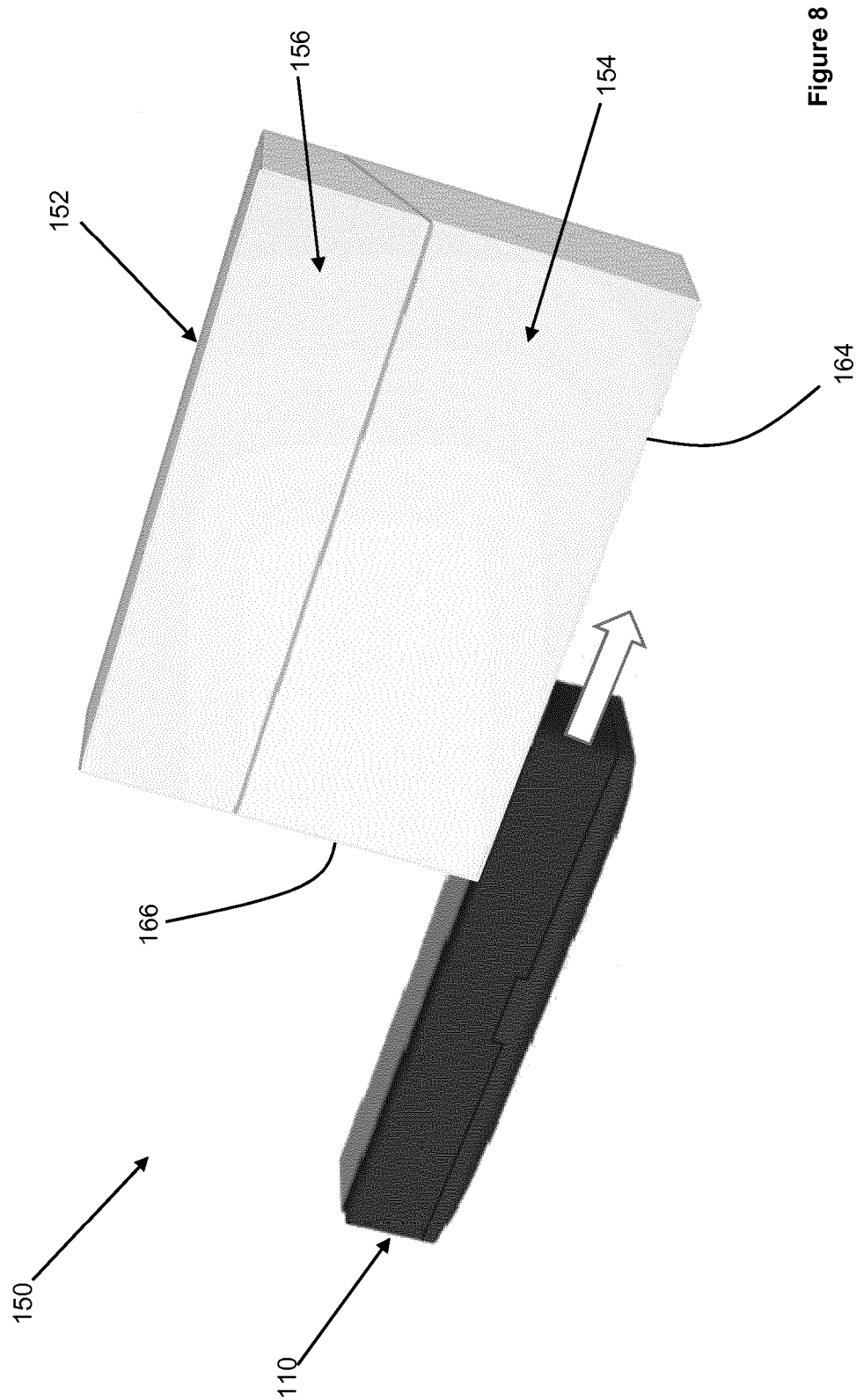
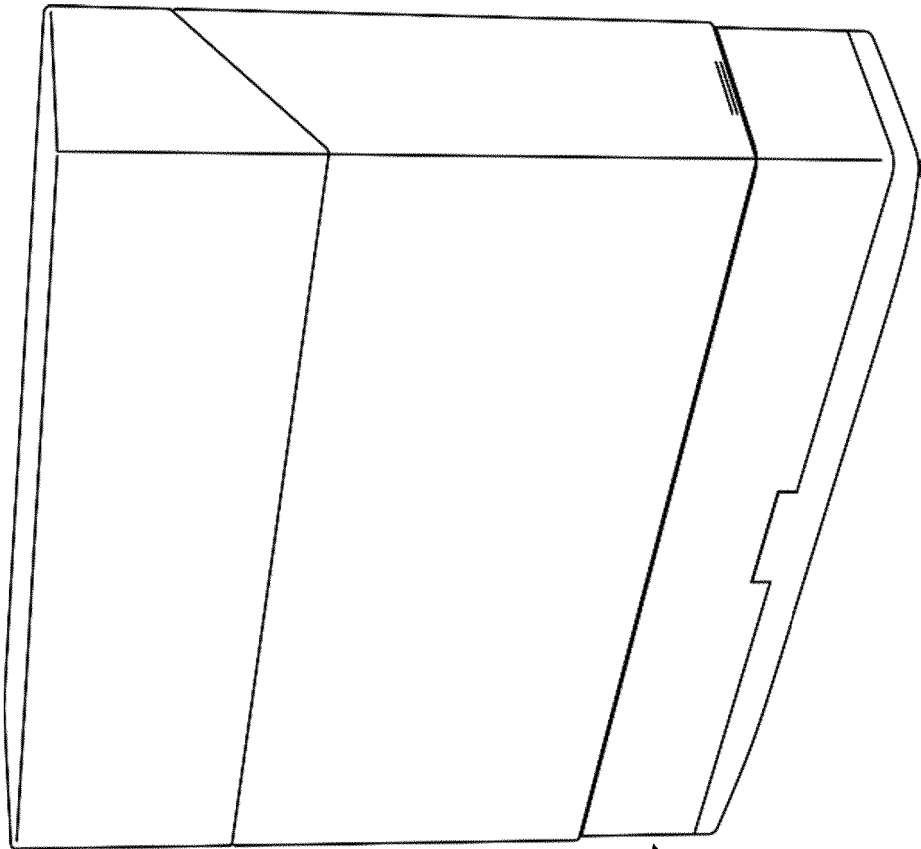


Figure 8

150

Figure 9



152

110

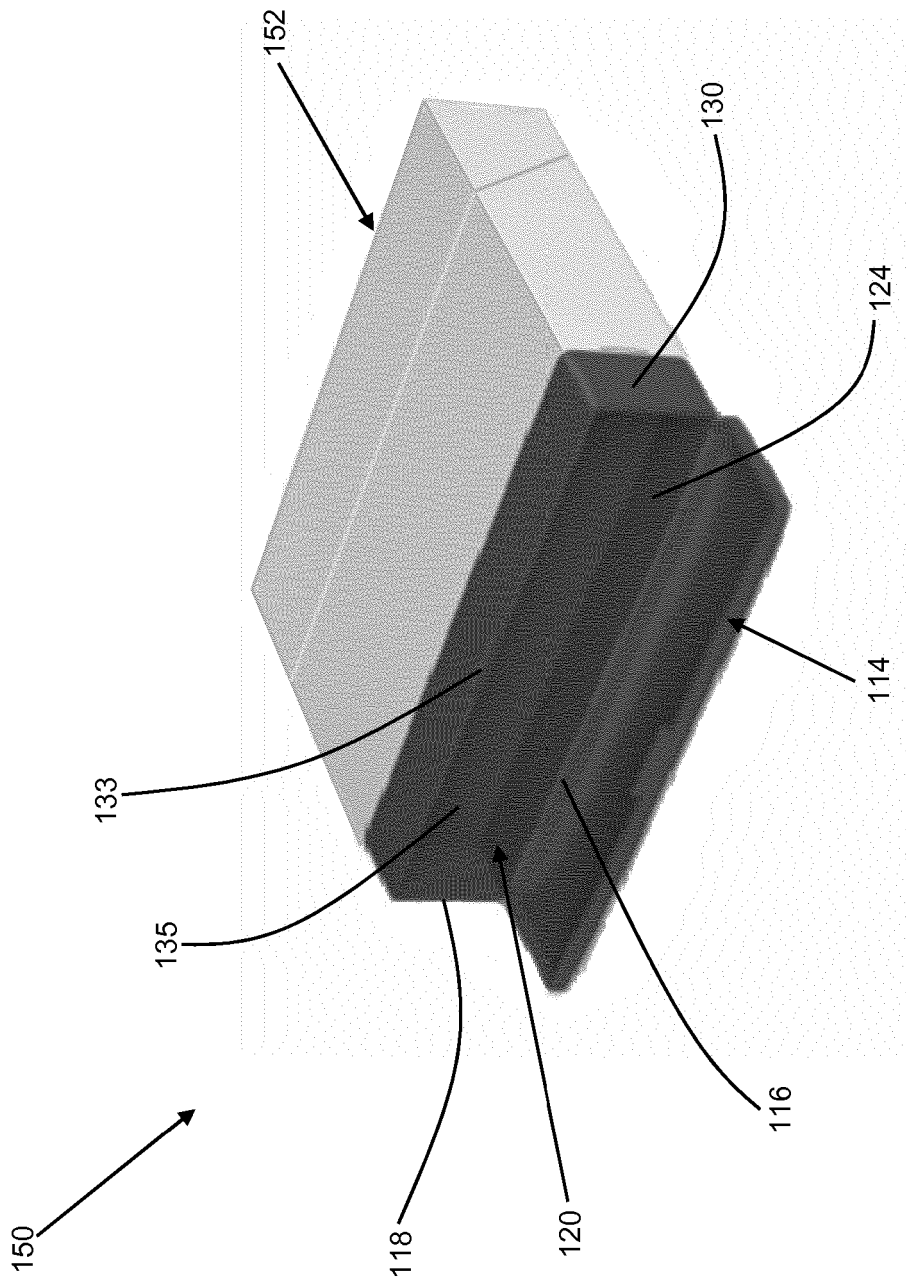


Figure 10

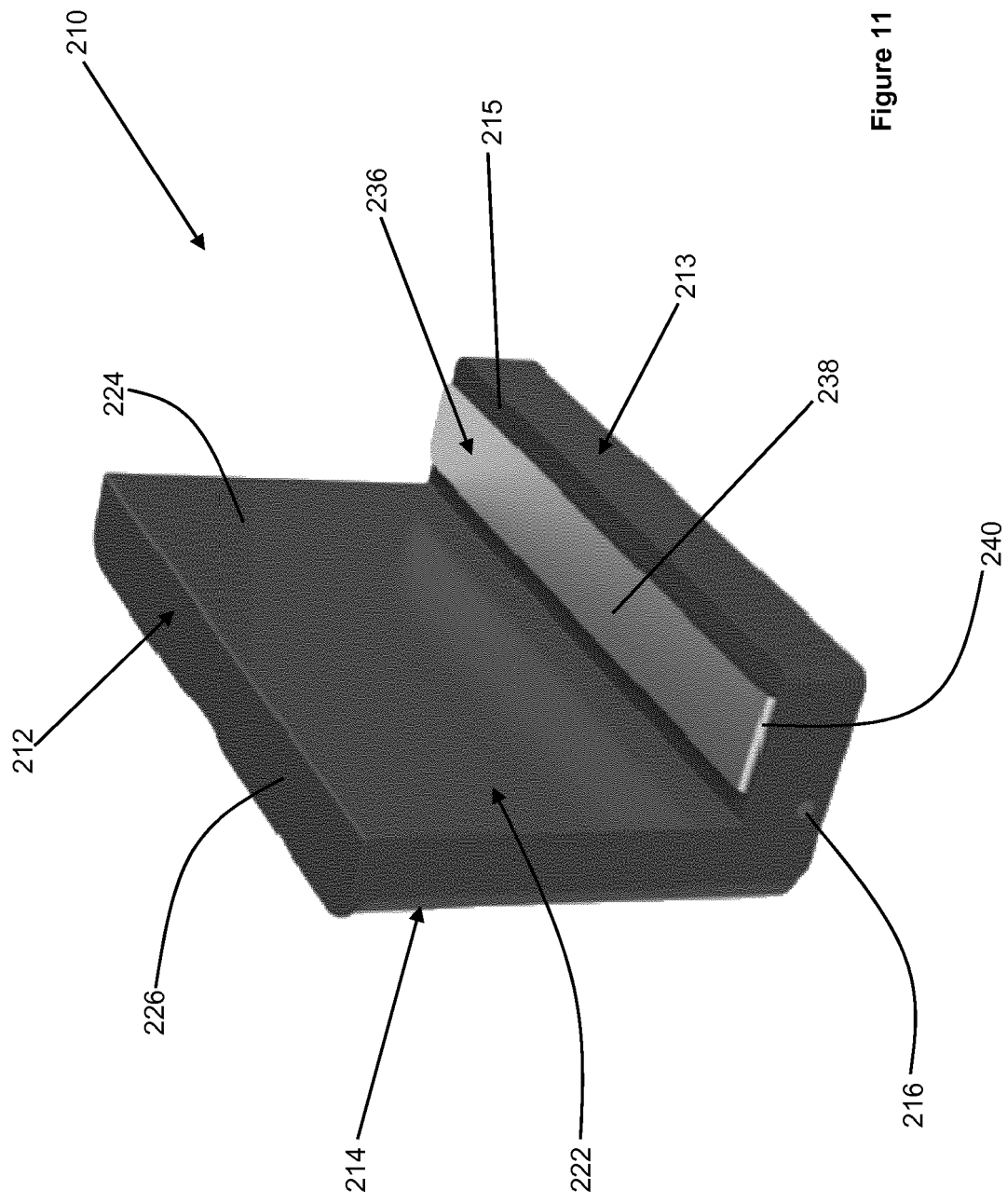


Figure 11

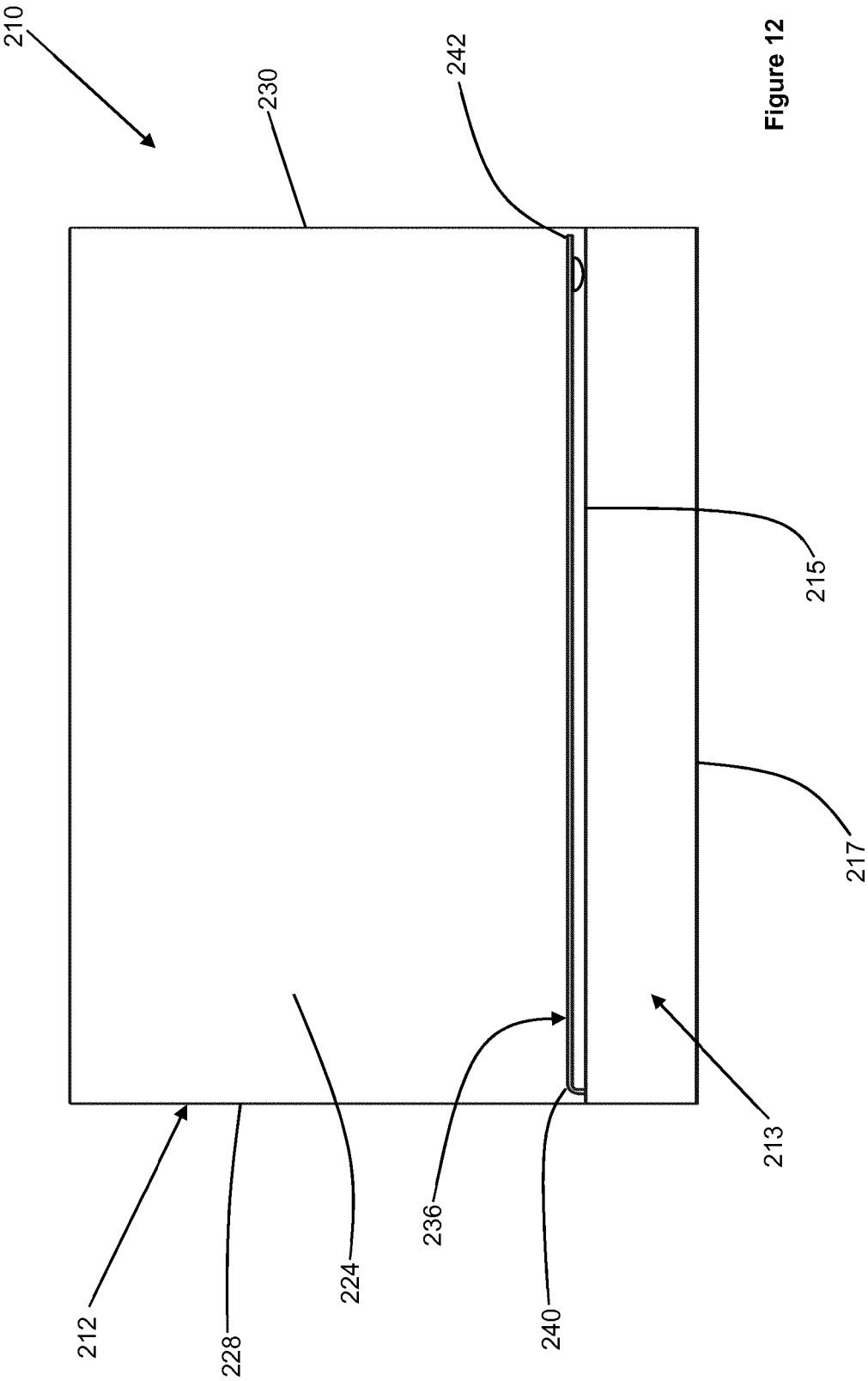


Figure 12

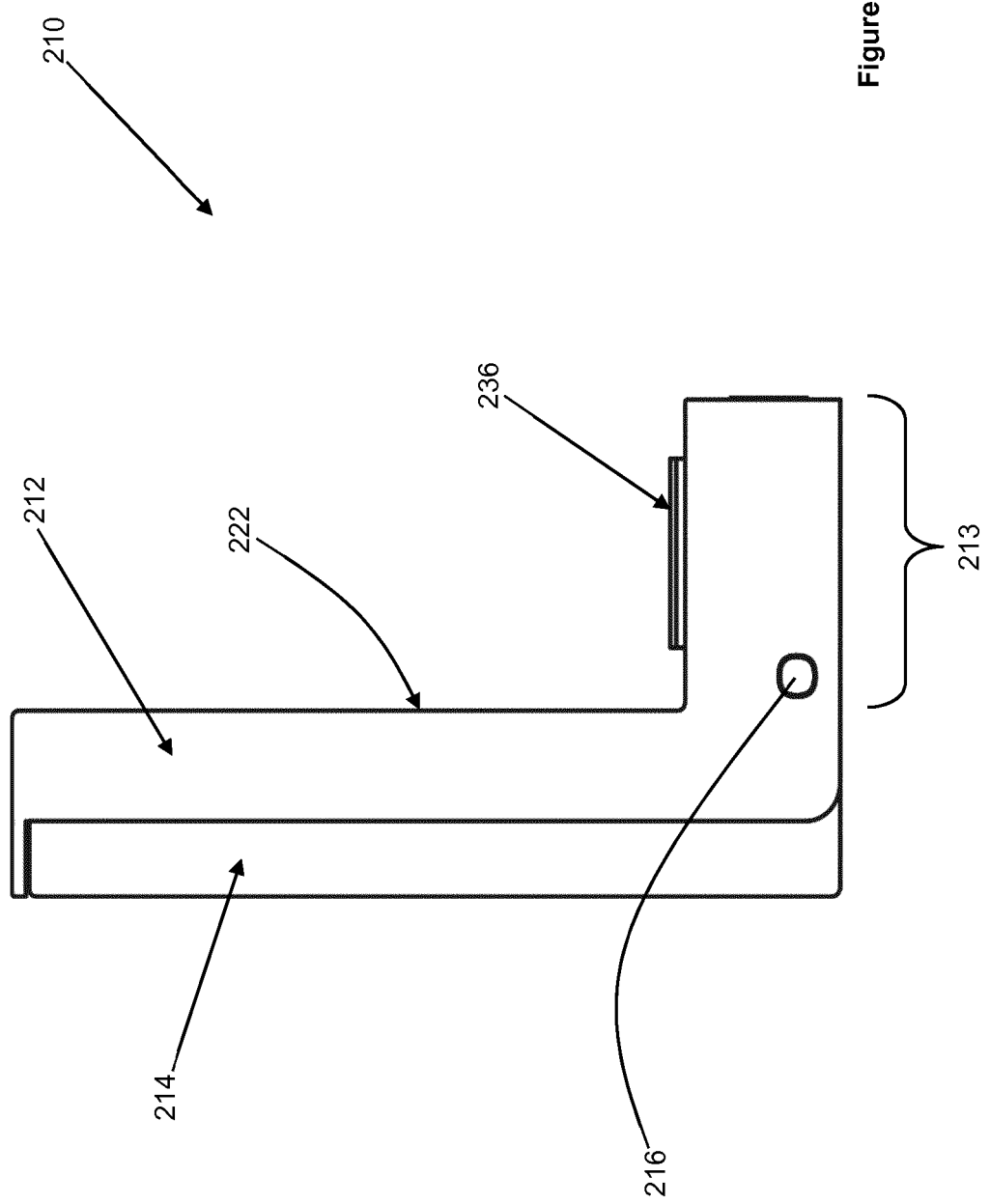


Figure 13

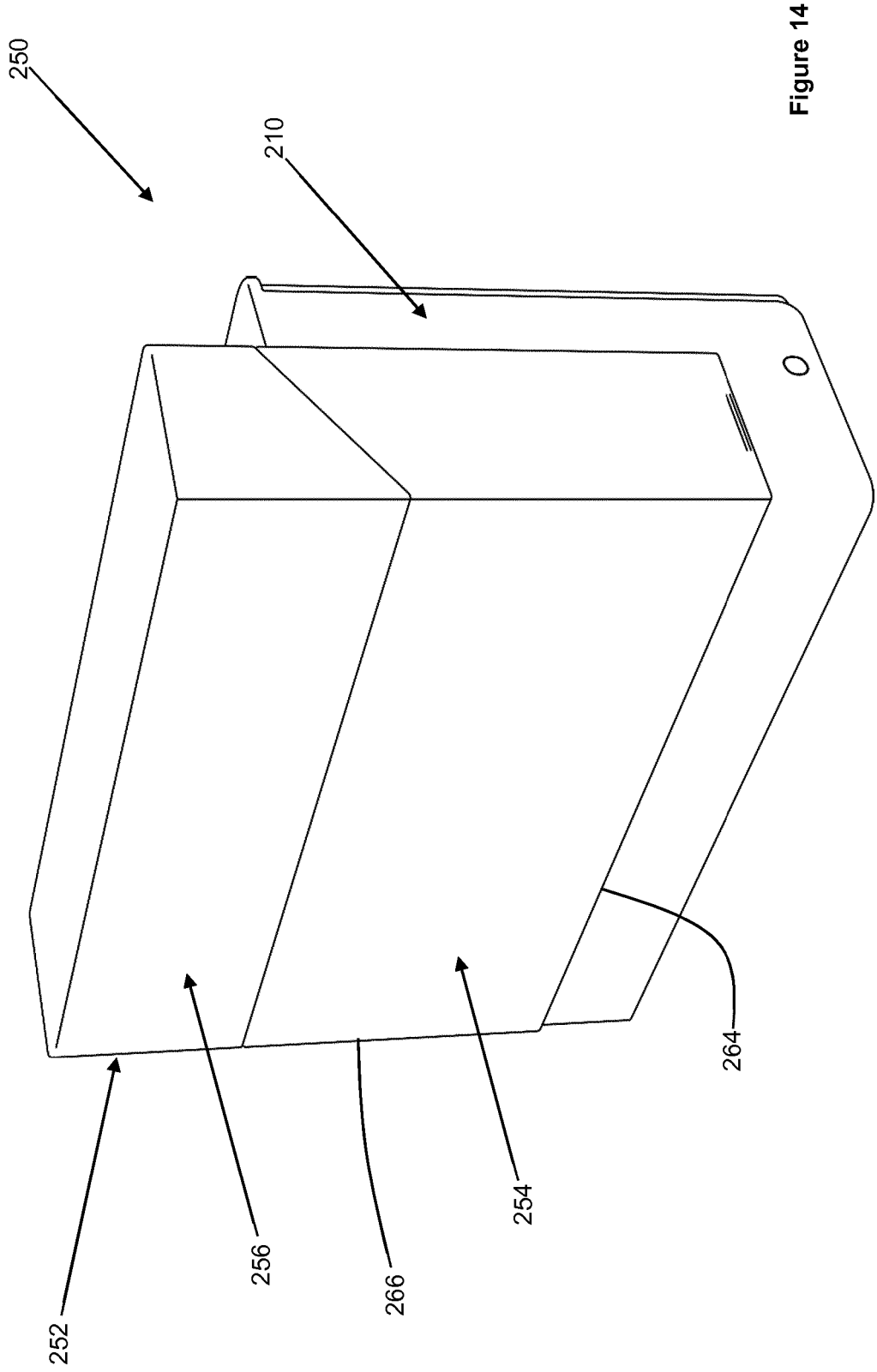


Figure 14

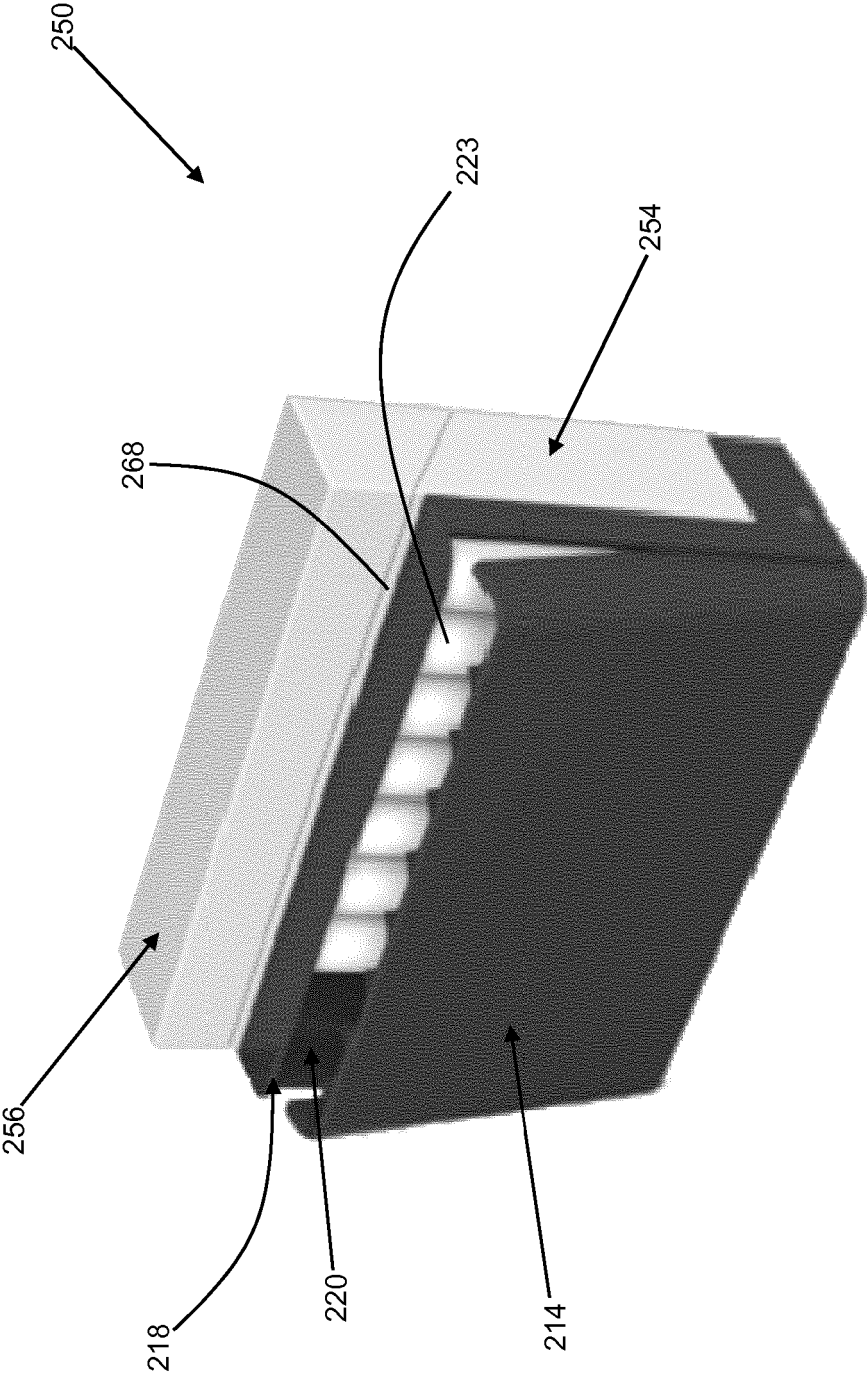


Figure 15

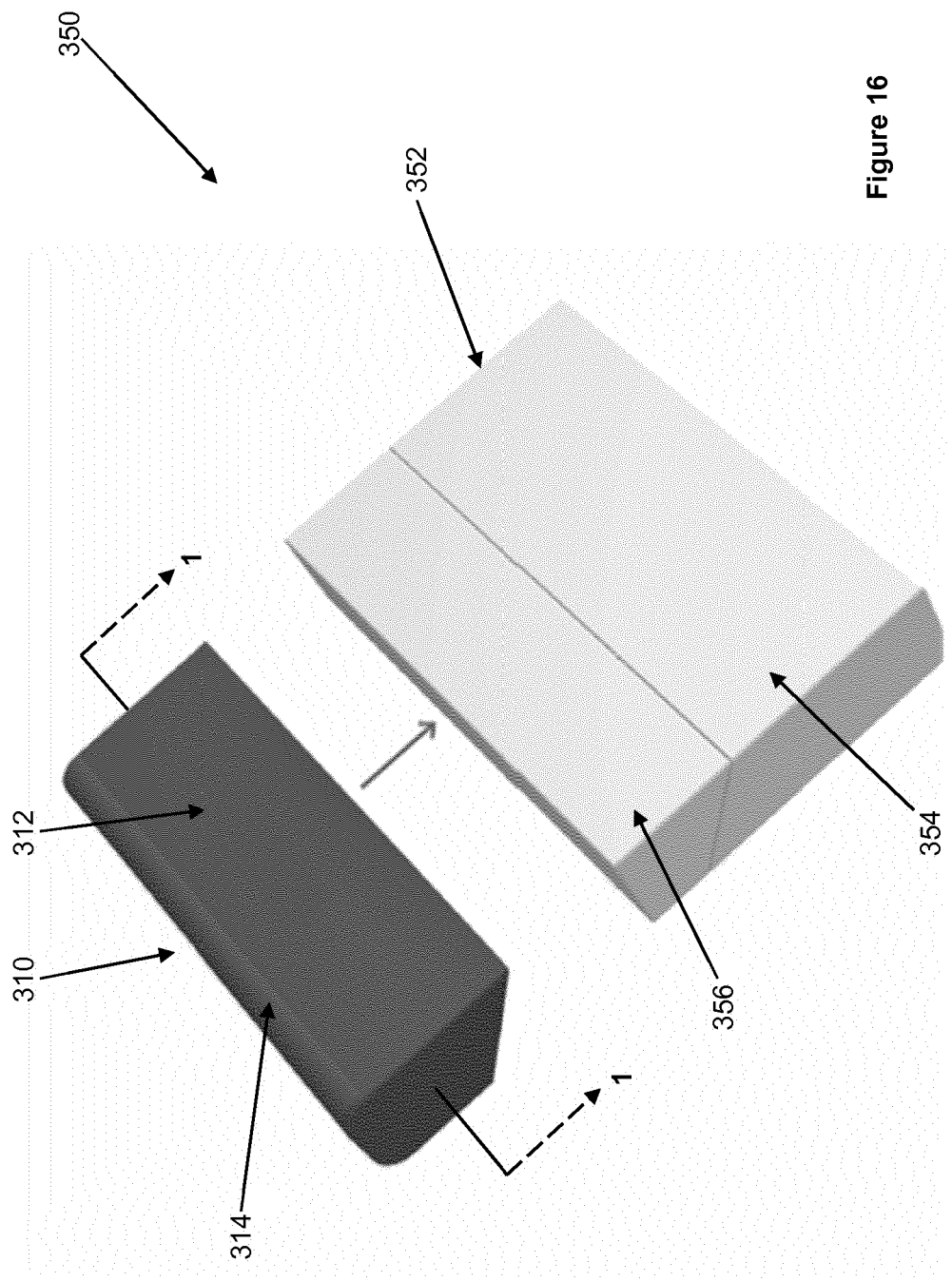


Figure 16

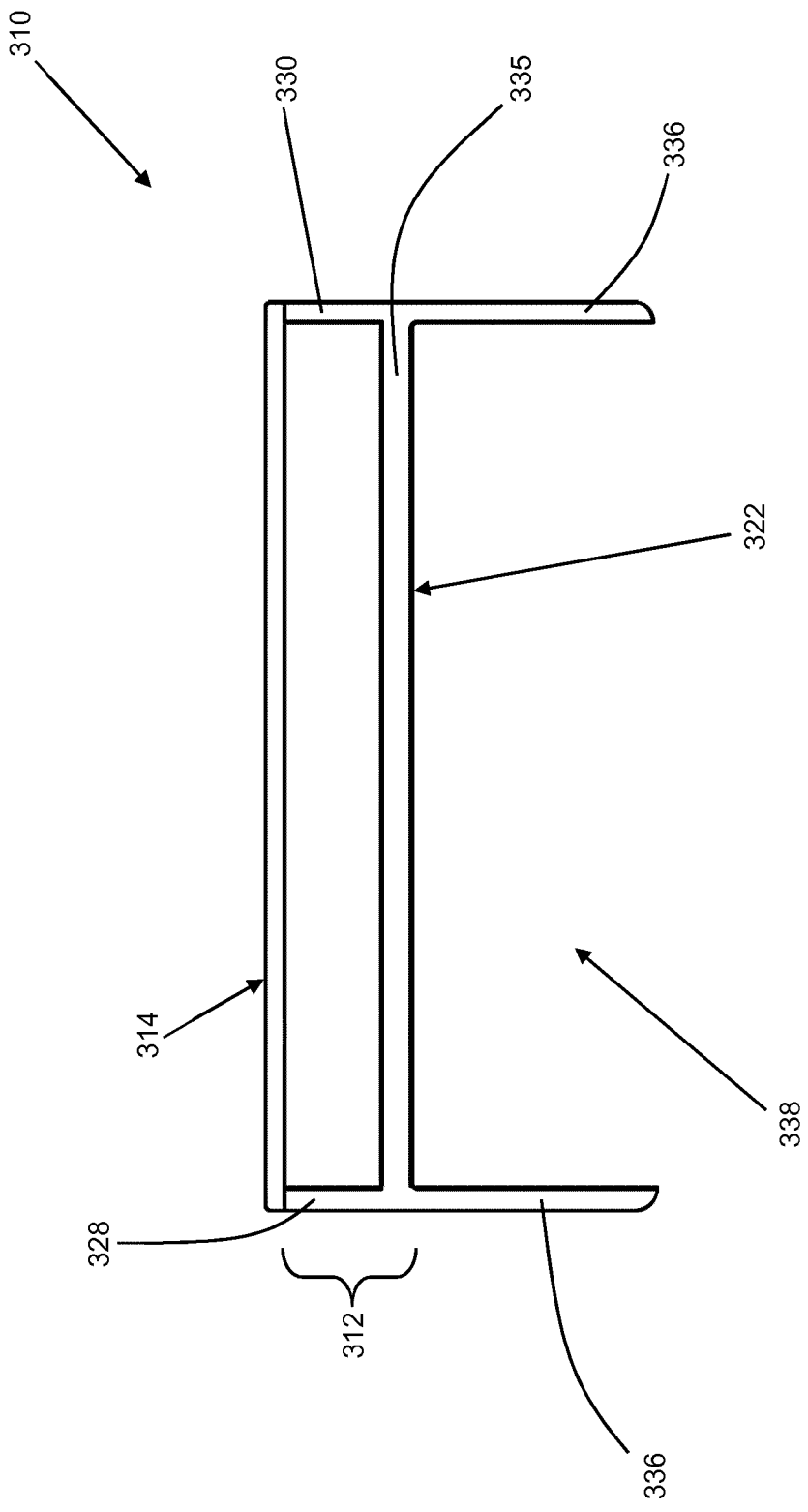


Figure 17

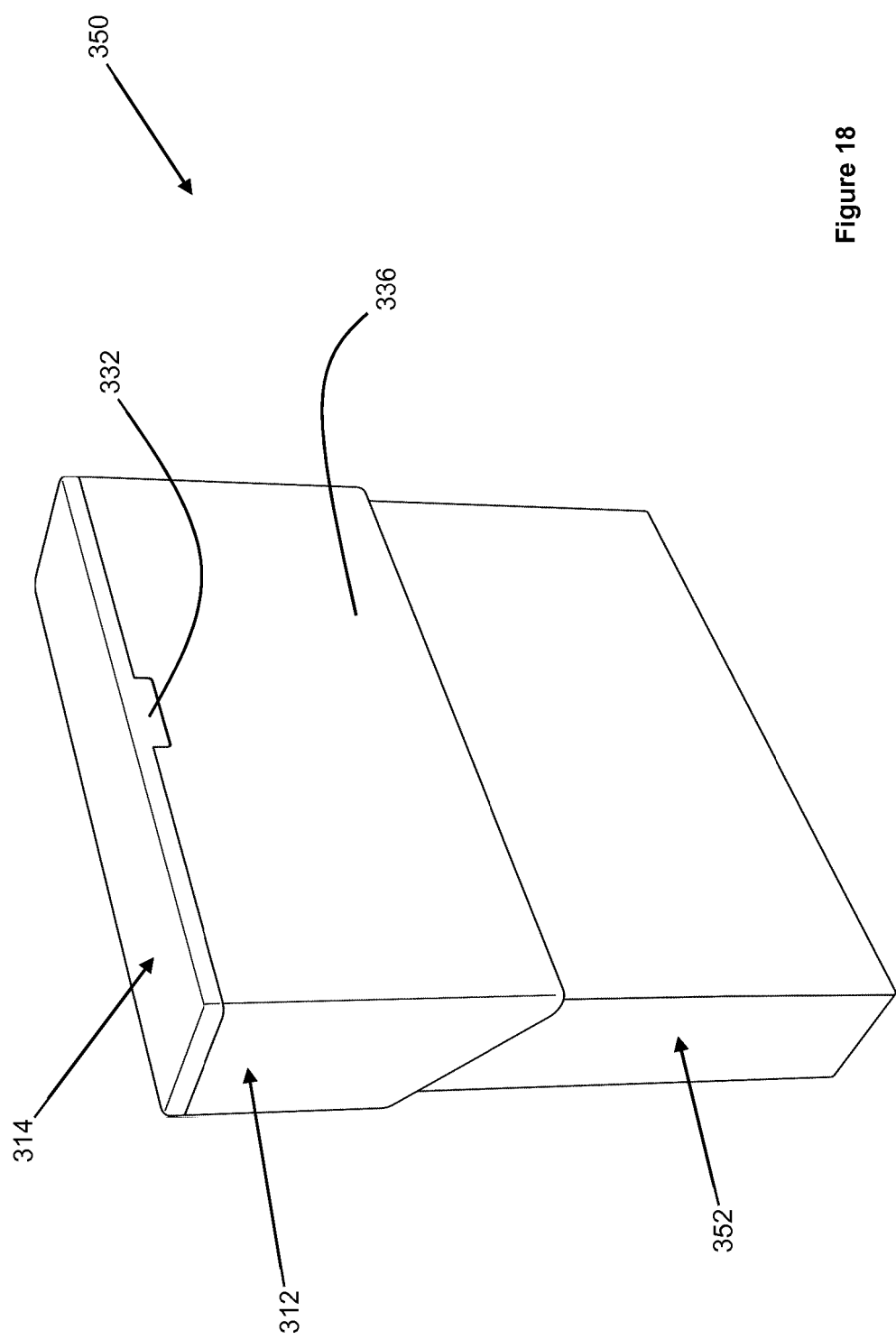


Figure 18

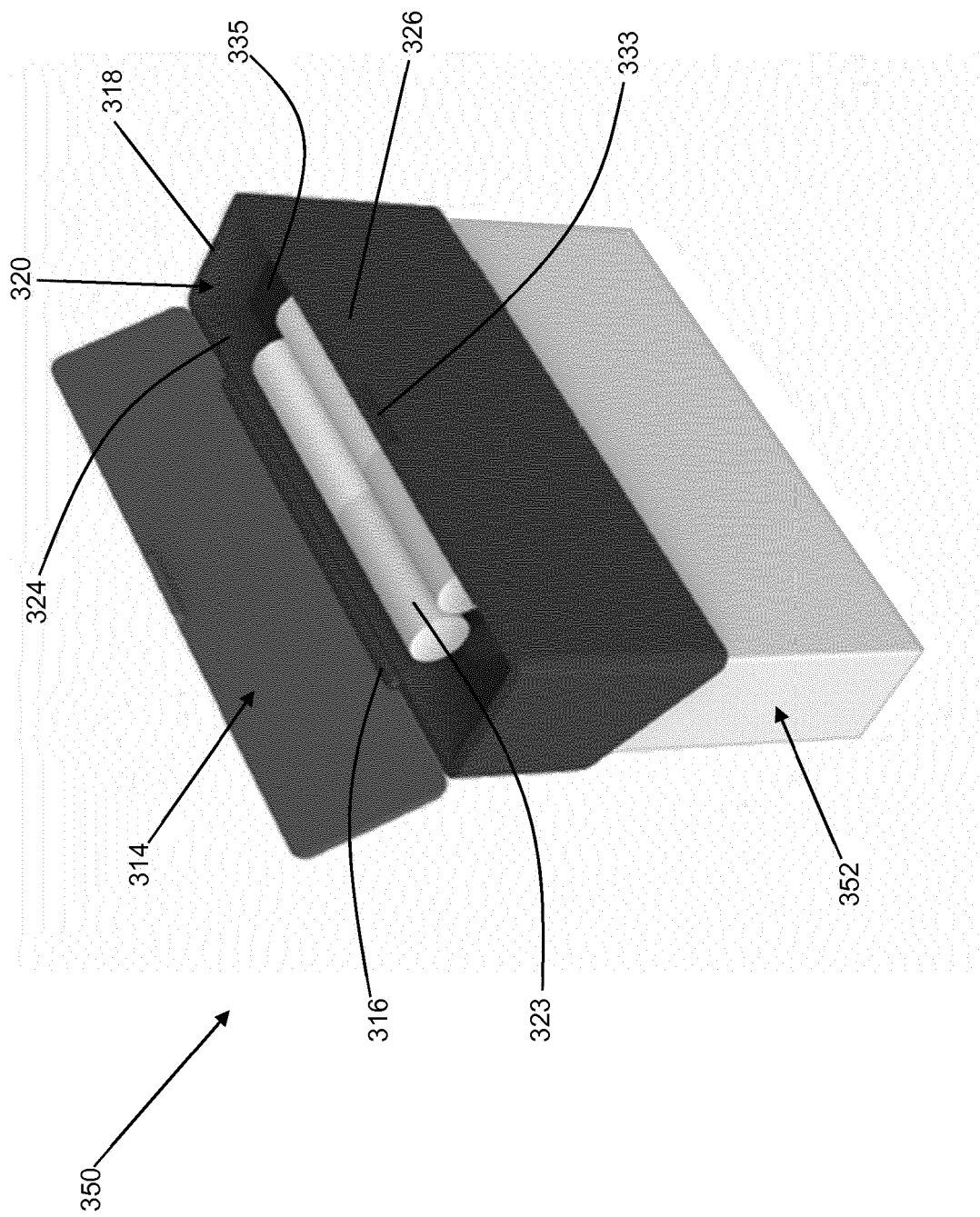


Figure 19

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

- DE 20301248 U1 [0002]
- US 4252237 A [0003]
- WO 2015136700 A1 [0004]
- FR 2684273 A1 [0005]