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(54) **CONTAINER FOR AEROSOL-GENERATING ARTICLES**

(57) A container (100) for aerosol-generating articles is provided. The container comprises a housing (102) having an opening (104) and a hinged lid (106) movable relative to the housing. The hinged lid is movable relative to the housing between an open position in which the lid exposes the opening and a closed position in which the lid covers the opening. The hinged lid comprises a cutting means (108) for cutting an aerosol-generating article.

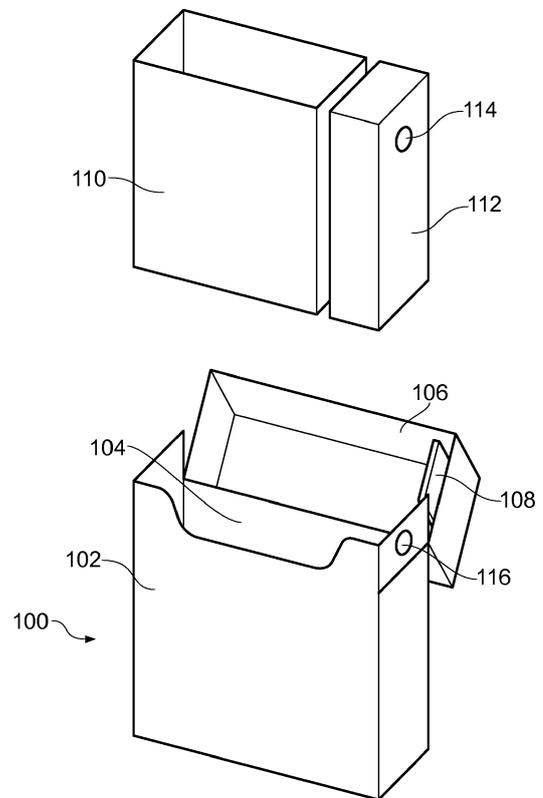


FIG. 1

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## Description

**[0001]** The invention relates to a container for aerosol-generating articles. Containers according to the invention find particular application with aerosol-generating articles comprising a combustible heat source of the type disclosed in WO 2009/022232.

**[0002]** Aerosol-generating articles may include conventional filter cigarettes in which a tobacco rod is combusted to form smoke.

**[0003]** Aerosol-generating articles may also include articles in which a tobacco material is heated to form an aerosol, rather than combusted. For example, some aerosol-generating articles have a distal end comprising a combustible heat source. In such articles, an aerosol may be generated by the transfer of heat from the combustible heat source to a physically separate aerosol forming material, located downstream of the combustible heat source.

**[0004]** Aerosol-generating articles are commonly packaged in a container comprising a box and a lid hinged to the box along a hinge line extending across a back wall of the container. Aerosol-generating articles housed in the box are commonly wrapped in an inner liner of metallised paper, metal foil or another sheet of flexible material. Typically, both the container and the inner liner may be formed from blanks. These blanks are typically transported and supplied in a flat state, stacked on top of each other, to packing machines. It would be desirable to adapt containers to specific characteristics of the consumer goods held within the containers. It would also be desirable to improve the ease of use of the consumer goods. This is especially true in view of the development of consumer goods, such as the development of new and innovative aerosol-generating articles, which present new challenges.

**[0005]** WO 2009/02232 discloses an aerosol-generating article comprising a combustible heat source, an aerosol-generating substrate downstream of the combustible heat source, and a heat-conducting element. The heat-conducting element is in contact with a rear portion of the combustible heat source and a front portion of the aerosol-generating substrate. In one such article, the heat-conducting element transfers heat generated during combustion of the heat source to the aerosol-generating substrate via conduction. Volatile compounds released from the aerosol-generating substrate by heat transfer from the combustible heat source are entrained in air drawn through the heated aerosol-generating article. As the released compounds cool, they condense to form an aerosol.

**[0006]** WO 2009/016461 discloses a housing comprising a first container body, a second container body and a moveable blade. The housing may be placed into a packet of cigarettes. In use, a user may insert a lit end of a cigarette into the second container body and move the blade with a finger or thumb to cut the cigarette.

**[0007]** It would be desirable to provide a container for

aerosol-generating articles having novel and improved functionality. It would be desirable to provide a container adapted for improving the ease and safety of use of aerosol-generating articles comprising a combustible heat source. Further, it would be desirable to provide such a container which is straightforward and inexpensive to manufacture.

**[0008]** According to the present disclosure, there is provided a container for aerosol-generating articles. The container may comprise a housing having an opening. The container may comprise a lid. The lid may be a hinged lid. The lid may be movable relative to the housing between an open position in which the lid exposes the opening and a closed position in which the lid covers the opening. The lid may comprise a cutting means for cutting an aerosol-generating article.

**[0009]** According to one example, there is provided a container for aerosol-generating articles. The container comprises a housing having an opening. The container comprises a lid. The lid is a hinged lid. The lid is movable relative to the housing between an open position in which the lid exposes the opening and a closed position in which the lid covers the opening. The lid comprises a cutting means for cutting an aerosol-generating article

**[0010]** Advantageously, the provision of a lid comprising a cutting means may provide a user with a safer way to cut an aerosol-generating article. It also may allow the user to cut the article with a familiar action.

**[0011]** The container of the present disclosure may be particularly suitable for use with aerosol-generating articles having a distal end which is configured to be lit in use, such as conventional cigarettes and articles having a distal end comprising a combustible heat source. With such articles, it may be desirable to sever the distal end of the aerosol-generating article from the remainder of the aerosol-generating article. For example, with a conventional cigarette, a user may wish to sever a lit distal end of the cigarette from the remainder of the cigarette, in order to save the remainder of the cigarette for later use. As another example, with articles having a distal end comprising a combustible heat source, a user may wish to sever the combustible heat source from the remainder of the aerosol-generating article, when the user has finished with the article. This may make it easier for the user to dispose of the aerosol-generating article.

**[0012]** The provision of a container having a lid comprising a cutting means may help with such desired severing. By way of example only, and as will become apparent with reference to the optional features described in more detail below, in some embodiments the container comprises a first storage compartment for storing unused aerosol-generating articles, and a second storage compartment for storing severed ends of the aerosol-generating articles. The second storage compartment may comprise a second storage compartment opening, which is aligned with an aperture in a wall of the housing of the container. In use, a user may remove an aerosol-generating article from the first storage compartment. When

the user has finished using the aerosol-generating article, the user may insert a distal end of the aerosol-generating article through the second storage compartment opening and the aperture in the wall of the housing of the container, such that a distal end portion of the aerosol-generating article resides in the second storage compartment. The user may then move the lid of the container to the closed position. This action may bring the cutting means into contact with the aerosol-generating article and sever the distal end portion of the aerosol-generating article from the remainder of the aerosol-generating article. The severed, distal end portion of the aerosol-generating article may then drop into a lower portion of the second storage compartment, where it can be safely stored. The remainder of the aerosol-generating article can then be separately discarded or kept for later use, where applicable. The user may repeat this process for any remaining aerosol-generating articles housed in the first storage compartment.

**[0013]** As used herein, the terms "front", "back", "upper", "lower", "top", "bottom" and "side" refer to the relative positions of portions of the container, and components thereof, when the container is in an upright position and the opening of the housing is towards a top of the container. These terms are used irrespective of the orientation of the container.

**[0014]** The term "longitudinal" refers to a direction from bottom to top or vice versa.

**[0015]** The term "transverse" refers to a direction perpendicular to the longitudinal direction.

**[0016]** The term "height" refers to a dimension measured in the longitudinal direction.

**[0017]** The term "width" refers to a dimension measured in a transverse direction.

**[0018]** The term "depth" refers to a dimension measured in a direction perpendicular to both the height and the width of the element.

**[0019]** The term "inner surface" refers to a surface of a component of the container which faces towards an interior of the component or the container when the lid is in the closed position. The term "outer surface" refers to a surface of a component of the container which faces away from the interior of the component or container when the lid is in the closed position. For example, the housing may comprise a front wall which has an inner surface which faces an inside of the container, and an outer surface which faces away from the inside of the container.

**[0020]** The term "hinge line" refers to a line about which a component may be pivoted. For example, a hinge line may be provided as a fold line or a score line in a wall of the container. The hinged lid may be pivotable about a hinge line.

**[0021]** The term "extinguishment substrate" refers to a material adapted to disperse or absorb heat. As such, an extinguishment substrate may be capable of rapidly lowering a temperature of an item put into contact with the extinguishment substrate, such as a lit end, or lit com-

bustible heat source, of an aerosol-generating article.

**[0022]** The term "super absorbent polymer" refers to a polymer capable of absorbing and retaining a large amount of a liquid relative to the mass of the polymer. Some super absorbent polymers are commonly known as "slush powder".

**[0023]** The housing of the container may comprise a housing bottom wall and one or more walls extending substantially upwards from the housing bottom wall. The housing may comprise one or more of a housing front wall, a housing back wall, a first housing side wall and a second housing side wall, each extending substantially upwards from the housing bottom wall. The housing may be substantially shaped as a parallelepiped. For example, the housing may be substantially shaped as a cuboid. Advantageously, a housing which is substantially shaped as a parallelepiped or a cuboid may be relatively straightforward and inexpensive to manufacture.

**[0024]** The housing may be sized such that it can contain a plurality of aerosol-generating articles, for example between 5 and 45, or between 5 and 35, or between 5 and 25 articles.

**[0025]** The housing may have a first dimension between about 10 millimetres and about 25 millimetres, a second dimension between about 50 millimetres and about 90 millimetres, and a third dimension between about 40 millimetres and about 100 millimetres, where each of the first, second and third dimensions are perpendicular to each other. The first dimension may be a depth of the housing. The second dimension may be a width of the housing. The third dimension may be a height of the housing.

**[0026]** Through an appropriate choice of dimensions, the container may be able to hold different numbers of aerosol-generating article articles, or different arrangements of aerosol-generating articles.

**[0027]** A hinge line may be provided as a fold line or a score line in a wall of the container. For example, the housing may comprise a back wall and the back wall may comprise a hinge line about which the hinged lid pivots. Alternatively, the housing may comprise a side wall and the side wall may comprise a hinge line about which the hinged lid pivots.

**[0028]** When the lid is in the open position, and an aerosol-generating article is stored in the container, a user may be able to extract the aerosol-generating article from the container through the opening of the housing.

**[0029]** The container may comprise a first storage compartment. The first storage compartment may be suitable for storing unused aerosol-generating articles. The first storage compartment may define an interior volume. The first storage compartment may be defined by a first storage compartment bottom wall and one or more of a first storage compartment first side wall, a first storage compartment second side wall, a first storage compartment front wall, and a first storage compartment back wall. One or more or all of the first storage compartment first side wall, the first storage compartment second side

wall, the first storage compartment front wall, and the first storage compartment back wall may each extend substantially upwards from the first storage compartment bottom wall. In some preferred embodiments, the first storage compartment is defined by all of the first storage compartment bottom wall, first storage compartment first side wall, first storage compartment second side wall, first storage compartment front wall, and first storage compartment back wall. One or more of these walls, or all of these walls, may be substantially planar.

**[0030]** The first storage compartment may be substantially shaped as a parallelepiped. The first storage compartment may comprise five walls of a hollow cuboid.

**[0031]** One or more of the walls of the first storage compartment may be provided by at least a portion of one or more of the walls of the housing of the container.

**[0032]** The first storage compartment walls may comprise paper, or cardboard, or both paper and cardboard.

**[0033]** The first storage compartment may be fixed to the housing of the container. For example, an outer surface of a wall of the first storage compartment may be fixed to an inner surface of a wall of the housing of the container. For example, an outer surface of the first storage compartment bottom wall may be fixed to an inner surface of the housing bottom wall of the container. Advantageously, fixing the first storage compartment to the housing of the container may secure the first storage compartment in position relative to the housing of the container.

**[0034]** The first storage compartment may be fixed to the housing of the container by any suitable means. For example, an adhesive, such as glue, could be used.

**[0035]** The first storage compartment may insertable into, and removable from, the housing of the container. The first storage compartment may be sized such that the first storage compartment is secured within the housing of the container by a friction fit. That is, a dimension of the first storage compartment may be equal to, or slightly smaller than, a corresponding dimension of the housing of the container such that, when the first storage compartment is located within the interior of the housing of the container, the first storage compartment is secured in place by friction. This friction may be between a wall of the first storage compartment and a wall of the housing of the container. For example, a depth of the first storage compartment may be equal to, or slightly smaller than, such as less than 3, 2, or 1 millimetres smaller than, a depth of the housing of the container. Advantageously, this may allow a user to remove the first storage compartment from the housing of the container. This may advantageously allow a user to replace an empty first storage compartment with a first storage compartment having aerosol-generating articles stored therein.

**[0036]** The first storage compartment may comprise a first storage compartment opening. The first storage compartment opening may be defined by upper edges of one or more walls of the first storage compartment. For example, the first storage compartment opening may

be defined by upper edges of one or more walls of the first storage compartment which each extend substantially upwards from the first storage compartment bottom wall. The first storage compartment opening may be located at or towards a top end of the first storage compartment. When the lid is in the open position, and an aerosol-generating article is stored in the first storage compartment, a user may be able to extract the aerosol-generating article from the first storage compartment through the first storage compartment opening.

**[0037]** The container, or the first storage compartment, may comprise a cover. The cover may be movable between an open position in which the cover exposes the first storage compartment opening and a closed position in which the cover covers the first storage compartment opening.

**[0038]** A user may be able to extract an aerosol-generating article from the first storage compartment when the cover is in the open position. The cover may seal the first storage compartment when the cover is in the closed position. Advantageously, this may prevent or reduce the likelihood of moisture reaching unused aerosol-generating articles stored in the first storage compartment.

**[0039]** The cover may be manually movable by the user between the closed position and the open position.

**[0040]** The cover may be attached to the lid of the container. The cover may be attached to the lid of the container such that, when the lid is moved between the closed position and the open position, the cover is simultaneously moved between the closed position and the open position, respectively.

**[0041]** The cover may be substantially impermeable to moisture. The cover may comprise a sheet of flexible material. The cover may comprise metallised paper. The cover may comprise metal foil. The cover may be, or may comprise, an inner liner.

**[0042]** The container may comprise a second storage compartment. The second storage compartment may be suitable for storing a severed, lit end of an aerosol-generating article. The second storage compartment may be suitable for storing a plurality of severed, lit ends of aerosol-generating articles.

**[0043]** The second storage compartment may define an interior volume. The second storage compartment may be defined by a second storage compartment bottom wall and one or more of a second storage compartment first side wall, a second storage compartment second side wall, a second storage compartment front wall, a second storage compartment back wall, and a second storage compartment top wall. In some preferred embodiments, the second storage compartment is defined by all of the second storage compartment bottom wall, second storage compartment first side wall, second storage compartment second side wall, second storage compartment front wall, second storage compartment back wall, and second storage compartment top wall. One or more or all of the second storage compartment second side wall, the second storage compartment second side wall,

the second storage compartment front wall, and the second storage compartment back wall may each extend substantially perpendicularly between the second storage compartment bottom wall and the second storage compartment top wall. One or more of these walls, or all of these walls, may be substantially planar.

**[0044]** The second storage compartment may be substantially shaped as a parallelepiped. For example, the second storage compartment may be substantially shaped as a cuboid.

**[0045]** One or more of the walls of the second storage compartment may be provided by at least a portion of one or more of the walls of the housing of the container.

**[0046]** The second storage compartment walls may comprise paper, or cardboard, or both paper and cardboard.

**[0047]** The second storage compartment may be fixed to the housing of the container. For example, an outer surface of a wall of the second storage compartment may be fixed to an inner surface of a wall of the housing of the container. For example, an outer surface of the second storage compartment bottom wall may be fixed to an inner surface of the housing bottom wall of the container. Advantageously, fixing the second storage compartment to the housing of the container may secure the second storage compartment in position relative to the housing of the container.

**[0048]** The second storage compartment may be fixed to the housing of the container by any suitable means. For example, an adhesive, such as glue, could be used.

**[0049]** The second storage compartment may insertable into, and removable from, the housing of the container. The second storage compartment may be sized such that the second storage compartment is secured within the housing of the container by a friction fit. That is, a dimension of the second storage compartment may be equal to, or slightly smaller than, a corresponding dimension of the housing of the container such that, when the second storage compartment is located within the interior of the housing of the container, the second storage compartment is secured in place by friction. This friction may be between a wall of the second storage compartment and a wall of the housing of the container. For example, a depth of the second storage compartment may be equal to, or slightly smaller than, such as less than 3, 2, or 1 millimetres smaller than, a depth of the housing of the container. Advantageously, this may allow a user to remove the second storage compartment from the housing of the container.

**[0050]** The second storage compartment may comprise a second storage compartment opening. The second storage compartment opening may be defined in a wall of the second storage compartment. For example, the second storage compartment opening may be defined in the second storage compartment first side wall. The second storage compartment opening may be the only opening in the second storage compartment. The second storage compartment opening may be config-

ured to receive at least a portion of an aerosol-generating article. For example, the second storage compartment opening may be configured to receive an end of an aerosol-generating article.

**[0051]** There may be reinforcement around the second storage compartment opening. For example, the second storage compartment opening may be in a wall of the second storage compartment and this wall may comprise reinforcement around the second storage compartment opening. For example, a material stiffer than a material of the wall may be attached to the wall around the second storage compartment opening.

**[0052]** Alternatively, or in addition, the second storage compartment opening may be in a wall of the second storage compartment and the wall may be formed from, or may comprise, a stiffer material than a material of another wall of the second storage compartment.

**[0053]** Aerosol-generating articles are commonly substantially cylindrical in shape and commonly have a substantially circular cross-section. Thus, the second storage compartment opening may have a substantially circular cross-section.

**[0054]** The second storage compartment opening may have a substantially circular cross-section with a diameter slightly larger than a diameter of the aerosol-generating articles configured to be stored in the container. The second storage compartment opening may have a substantially circular cross-section with a diameter of between about 5 millimetres and about 25 millimetres, or between about 6 millimetres and about 20 millimetres, or between about 7 millimetres and about 15 millimetres, or between about 8 millimetres and about 10 millimetres. The second storage compartment opening may have a substantially circular cross-section with a diameter of about 9 millimetres.

**[0055]** The second storage compartment may comprise a material which is one or more of heat-resistant, non-flammable and thermally-insulating.

**[0056]** One or more or all of the second storage compartment walls may comprise one or more of paper, cardboard, metal, metallised paper, and metal foil. One or more or all of the second storage compartment walls may comprise a coating. For example, an inner surface of one or more or each of the second storage compartment walls may comprise a coating. The coating may comprise a material which is one or more of heat-resistant, non-flammable and thermally-insulating. Advantageously, the coating may improve a resistance to heat of the second storage compartment.

**[0057]** The second storage compartment may be sealed from the first storage compartment when the hinged lid is in the closed position. Advantageously, this may reduce an amount of moisture from the second storage compartment entering the first storage compartment.

**[0058]** The second storage compartment may be substantially hermetically sealed when the hinged lid is in the closed position. That is, when the hinged lid is in the closed position, no air, or only a small or negligible

amount of air, may be able to enter the second storage compartment from outside the second storage compartment. Advantageously, this allows a user to extinguish a lit end, or lit combustible heat source, of an aerosol-generating article in the second storage compartment by moving the hinged lid to the closed position and starving the lit end, or lit combustible heat source, of oxygen.

**[0059]** The second storage compartment may comprise an inner enclosure. The inner enclosure may be located within the second storage compartment. The inner enclosure may comprise a heat-resistant and non-flammable material. The inner enclosure may be, or may comprise, a flexible sheet of material. The inner enclosure may be, or may comprise, a bag.

**[0060]** The inner enclosure may comprise an inner enclosure opening. The inner enclosure opening may be substantially aligned with the second storage compartment opening. Thus, a portion of an aerosol-generating article may be inserted through the second storage compartment opening and the inner enclosure opening simultaneously.

**[0061]** The inner enclosure opening may be the only opening of the inner enclosure. Therefore, advantageously, a portion of an aerosol-generating article inserted through the second storage compartment opening and the inner enclosure opening may be prevented from contacting the second storage compartment by the inner enclosure.

**[0062]** Advantageously, the use of an inner enclosure may allow the use of different materials for the second storage compartment, such as less heat-resistant materials.

**[0063]** An extinguishment substrate may be provided in the second storage compartment or in the inner enclosure. Alternatively, or in addition, where one or more walls of the second storage compartment comprise a coating, the coating may comprise an extinguishment substrate.

**[0064]** Advantageously, a second storage compartment comprising an extinguishment substrate may provide an easy way for a user to extinguish a lit end, or lit combustible heat source, of an aerosol-generating article.

**[0065]** The extinguishment substrate may comprise water. When a relatively hot item, such as a lit end, or lit combustible heat source, of an aerosol-generating article, contacts the extinguishment substrate, the water may almost instantaneously evaporate. Advantageously, this may rapidly lower the temperature of the relatively hot item. In this context, the term "relatively hot" refers to a temperature substantially greater than room temperature, for example, greater than 100 or 200 degrees Centigrade.

**[0066]** The extinguishment substrate may be in the form of a gel or a hydrogel.

**[0067]** The extinguishing substrate may be, or may comprise, a super absorbent polymer.

**[0068]** Suitable super absorbent polymers may comprise polyacrylates, such as sodium polyacrylate and po-

tassium polyacrylate. Without being bound by theory, it is understood that, in some super absorbent polymers, the formation of hydrogen bonds between water molecules and polymer molecules causes polymer molecules to stretch. This allows a relatively large amount of water to be absorbed by super absorbent polymers.

**[0069]** The ability of a super absorbent polymer to absorb water varies depending on the ionic concentration of the aqueous solution.

**[0070]** In deionized and distilled water, some super absorbent polymers can absorb approximately 300 times their weight in water. A loaded super absorbent polymer can comprise up to 99.9% water by weight. Some super absorbent polymers can absorb water and expand to 30 to 60 times their initial volume.

**[0071]** In contrast, in a 0.9% saline solution, the absorbency of some super absorbent polymers may drop such that they can absorb up to approximately 50 times their weight in water. Without being bound by theory, this is understood to occur because the presence of valence cations in the solution prevents the polymer from forming bonds with the water molecules.

**[0072]** The extinguishing substrate may be, or may comprise, a super absorbent polymer able to absorb and retain at least 50 or 100 times its weight in deionized and distilled water.

**[0073]** The total absorbency and swelling capacity of super absorbent polymers may depend on the type of cross-linkers used to make the super absorbent polymers and on the degree of crosslinking in the super absorbent polymers.

**[0074]** Low-density cross-linked super absorbent polymers generally have a higher absorbent capacity and swell to a larger degree compared to high-density cross-linked super absorbent polymers. Low-density cross-linked super absorbent polymers also tend to form softer and stickier gels compared to high-density cross-linked super absorbent polymers, which tend to form firmer gels that can maintain their shape even under modest pressure.

**[0075]** The super absorbent polymer may be loaded with water. Advantageously, a super absorbent polymer loaded with water may be able to rapidly lower the temperature of a relatively hot item which contacts the polymer. In this context, the term "relatively hot" refers to a temperature substantially greater than room temperature.

**[0076]** The super absorbent polymer may be provided in a substantially dry state. In this case, the super absorbent polymer may be subsequently loaded with water, for example by injecting water into the extinguishment substrate comprising the super absorbent polymer. Advantageously, this may reduce a risk of leakage until the user loads the polymer with water.

**[0077]** If the super absorbent polymer is provided in a substantially dry state, the container may be provided with information which directs the user to introduce a suitable amount of water into the super absorbent polymer.

This suitable amount of water may be based on which super absorbent polymer, or polymers, are present, and the amount of the super absorbent polymer, or polymers, present.

**[0078]** The extinguishing substrate may comprise a heat-absorbing gel. A suitable heat-absorbing gel may be formed from a solution comprising water and sodium bicarbonate. A suitable heat-absorbing gel may be formed from a solution comprising water and sodium silicate.

**[0079]** The extinguishment substrate may comprise a heat-absorbing paste. The heat-absorbing paste adapted to act as a heat sink like Thermo-Trap by Nu-Calgon®. The heat-absorbing paste may comprise Thermo-Trap by Nu-Calgon®.

**[0080]** The extinguishment substrate may be arranged within the second storage compartment, or the inner enclosure, to form a bed. The bed may have a height of at least about 5 millimetres, 9 millimetres, or 12 millimetres. The bed may have a height of less than about 25 millimetres, 20 millimetres, or 15 millimetres.

**[0081]** Advantageously, extinguishment substrate arranged to form such a bed may extinguish a combustible heat source of an aerosol-generating article easily, without a large surplus of extinguishment substrate.

**[0082]** The inner enclosure, may comprise a barrier film.

**[0083]** The barrier film may be, or may comprise, a metal foil or a metallised paper. The barrier film may be, or may comprise, a laminate of a metallised polyethylene film and a liner material. The barrier film may be, or may comprise, a supercalendered glassine paper. The barrier film may comprise with a print-receptive top coating.

**[0084]** The barrier film may be, or may comprise, a laminate comprising a layer of aluminium sandwiched between two layers comprising oriented polypropylene. Advantageously, the aluminium layer may help to retain moisture within the second storage compartment.

**[0085]** The first storage compartment and the second storage compartment may be arranged adjacent to each other in the housing of the container. The first storage compartment and the second storage compartment may be attached to each other. For example, a wall of the first storage compartment may be attached to a wall of the second storage compartment. The first storage compartment and the second storage compartment may be attached to each other and insertable into, and removable from, the housing of the container. The first storage compartment and the second storage compartment may be sized such that the first storage compartment and the second storage compartment is secured within the housing of the container by a friction fit. Advantageously, this may allow the first storage compartment and the second storage compartment to be replaced without replacing the entire container.

**[0086]** The first storage compartment and the second storage compartment may be arranged such that they are transversely aligned in a direction transverse to the

longitudinal axis of the housing of the container. That is, the first storage compartment and the second storage compartment may be arranged side by side in the housing of the container.

5 **[0087]** The housing of the container may comprise a housing aperture. The housing aperture may be suitable for receiving at least a portion of an aerosol-generating article, for example an end of an aerosol-generating article. The housing aperture may be substantially aligned with the second storage compartment opening. The housing aperture may be substantially aligned with the second storage compartment opening such that a portion, or an end, of an aerosol-generating article may be inserted through the second storage compartment opening and the inner enclosure opening simultaneously.

10 **[0088]** The lid may comprise a lid top wall. The lid may comprise a lid first side wall. The lid may comprise a lid second side wall. The lid second side wall may oppose the lid first side wall. The lid may comprise a lid front wall. The lid may comprise a lid back wall, and the lid back wall may oppose the lid front wall. One or more of these walls, or all of these walls, may be substantially planar.

20 **[0089]** The lid first side wall and the lid second side wall may occupy substantially parallel planes. The lid front wall and the lid back wall may occupy substantially parallel planes. The lid top wall may occupy a plane substantially perpendicular to the plane occupied by the lid first side wall, or the plane occupied by the lid back wall, or both the plane occupied by the lid first side wall and the plane occupied by the lid back wall.

25 **[0090]** The lid may comprise five walls of a hollow cuboid. The lid may pivot about a hinge line on a back wall of the housing of the container. The lid may pivot about a hinge line on a side wall of the housing of the container.

30 **[0091]** At least part of the cutting means may be located on, or attached to, an underside of the lid. That is, at least part of the cutting means may be located on, or attached to, an inner surface of the lid top wall. Advantageously, this may mean that the cutting means is hidden when the lid is in the closed position.

35 **[0092]** The cutting means may be substantially planar. The lid first side wall and the cutting means may both be substantially planar and occupy substantially parallel planes.

40 **[0093]** The cutting means may be spaced from the lid first side wall of the lid. For example, the cutting means may be spaced from the lid first side wall of the lid by at least about 0.5, 1, 2, 3, or 5 millimetres.

45 **[0094]** At least part of the cutting means may be located between the lid first side wall and the lid second side wall. The cutting means, the lid first side wall and the lid second side wall may all be substantially planar and occupy substantially parallel planes.

50 **[0095]** A user may not be able to touch the cutting means when the hinged lid is in the closed position. The cutting means may be hidden, or surrounded by other components of the container, when the hinged lid is in

the closed position. Advantageously, this may reduce a risk of a user cutting themselves.

**[0096]** The cutting means may be configured to cut an aerosol-generating article as a result of movement of the lid from the open position to the closed position. Advantageously, this may allow the user to cut the aerosol-generating article using a familiar action of moving the lid of the container from the open position to the closed position.

**[0097]** When the lid is in the closed position, the cutting means, or at least part of the cutting means, may be located between the second storage compartment and the housing of the container. Advantageously, this may reduce a risk of a user cutting themselves since, when the lid is in the closed position, at least part of the cutting means is covered by the housing of the container.

**[0098]** When the lid is in the closed position, the cutting means may occlude the second storage compartment opening.

**[0099]** When the lid is in the closed position, the cutting means may occlude the second storage compartment opening and substantially hermetically seal the second storage compartment. That is, when the lid is in the closed position, no air, or only a small or negligible amount of air, may be able to enter the second storage compartment from outside the second storage compartment. Advantageously, this may allow a user to extinguish a lit end, or lit combustible heat source, in the second storage compartment by moving the lid to the closed position.

**[0100]** The cutting means may comprise one or more of a metal, a plastic, and a cardboard material. The cutting means may comprise a blade.

**[0101]** The cutting means may comprise a cutting portion and a support portion. The cutting portion may comprise a sharp edge, or a blade. The cutting portion, or the blade, may comprise a metal. The support portion may comprise cardboard.

**[0102]** The support portion may comprise a protrusion. The support portion may be substantially planar. The protrusion may protrude in a direction which is substantially perpendicular to a plane of the support portion.

**[0103]** In use, a user may insert a lit end, or lit combustible heat source, of an aerosol-generating article through the housing aperture (if present) and the second storage compartment opening. Thus, at this stage, a portion of the aerosol-generating article comprising the lit end, or combustible heat source, is located within the second storage compartment. The cutting means may then cut the aerosol-generating article. For example, cutting means may cut the aerosol-generating article as a result of movement of the lid from the open position to the closed position. This may cut the aerosol-generating article into a severed, distal portion and a proximal portion. The distal portion of the aerosol-generating article may comprise the lit end or the end comprising the combustible heat source. The distal portion of the aerosol-generating article may then fall in the second storage compartment. The distal portion, which comprises the lit

end, or lit combustible heat source, may be extinguished within the second storage compartment.

**[0104]** In use, the protrusion of the support portion may apply a force to the aerosol-generating article. The force may be applied during, or after, or both during and after, the cutting means cuts the aerosol-generating article into a distal portion and a proximal portion. The force may act to force the distal portion of the article further from the second storage compartment opening. The force may act to force the distal portion further into the second storage compartment.

**[0105]** After the user cuts the aerosol-generating article, the second storage compartment may store the distal portion of the article. It may be preferable to limit how far an article may be inserted into the second storage compartment through the second storage compartment opening. That is, it may be preferable to limit a length of article insertable into the second storage compartment through the second storage compartment opening. In this way, it may be possible to limit a length of the severed, distal portion of the article.

**[0106]** The second storage compartment may comprise a stopping surface configured to abut an end of an aerosol-generating article inserted through the second storage compartment opening at a point disposed between the plane of the second storage compartment first side wall and the plane of the second storage compartment second side wall. This can help to restrict the length of a distal portion of the aerosol-generating article which is severed by the cutting means to being less than the distance between the plane of the second storage compartment first side wall and the plane of the second storage compartment second side wall. In particular, because the stopping surface prevents the end the aerosol-generating article from moving beyond a point disposed between the plane of the second storage compartment first side wall and the plane of the second storage compartment second side wall, the distal portion of the article which is severed by the cutting means can be short enough to fit within the second storage compartment, and in particular, a lower portion of the second storage compartment. This may help to ensure that the second storage compartment can be efficiently filled. This may also help to prevent severed portions of aerosol-generating articles from becoming wedged in the second storage compartment.

**[0107]** The stopping surface may be positioned at a height in the container. The height of the stopping surface may be the same as or similar to the height at which the second storage compartment opening is positioned. That is, the stopping surface may be positioned at a height in the container, which is within about 20 percent of the height at which the second storage compartment opening is positioned. For example, if the second storage compartment opening is positioned at a height of 100 millimetres, the stopping surface may be positioned at a height of between about 80 millimetres and about 120 millimetres. More preferably, the stopping surface is po-

sitioned at a height in the container, which is within about 10 percent or about 5 percent of the height at which the second storage compartment opening is positioned.

**[0108]** The stopping surface may be an inclined surface angled relative to the plane of the second storage compartment first side wall and the plane of the second storage compartment second side wall. The inclination may be such that, when an end of an aerosol-generating article inserted through the secondary storage compartment opening abuts the stopping surface, the stopping surface urges the inserted aerosol-generating article substantially in a direction of travel of the cutting means when the cutting means cuts the aerosol-generating article. The inclination may be such that, when an end of an aerosol-generating article inserted through the second storage compartment opening abuts the stopping surface, the stopping surface urges the inserted aerosol-generating article towards the bottom of the container. Advantageously, an angled stopping surface as described above may provide an effective way to ensure that the severed, distal portion of the article can be short enough to easily fall into the second storage compartment after being cut by the cutting means. Further, an angled stopping surface may be relatively straightforward to implement in an inexpensive manner.

**[0109]** The stopping surface may be a surface of a component which resides in the interior volume of the second storage compartment. For example, the stopping surface may be a surface of a component, such as a panel, which extends down from the second storage compartment top wall and into the interior volume of the second storage compartment. As another example, the stopping surface may be a surface of a further wall of the second storage compartment. For example, the stopping surface may be a surface of an inclined wall of the second storage compartment, the inclined wall may extend from the upper edge of the second storage compartment second side wall to the edge of the second storage compartment top wall.

**[0110]** The stopping surface may comprise, or may be at least partially coated with, a material which is heat-resistant or non-flammable or both.

**[0111]** The invention will now be described, by way of example only, with reference to the accompanying drawings in which:

Figure 1 is an exploded view of a container for aerosol-generating articles;  
 Figure 2 is a front, cross-sectional view of the container;  
 Figure 3 is a side view of the container;  
 Figure 4A is a first front, cross-sectional view of a portion of the container;  
 Figure 4B is a second front, cross-sectional view of a portion of the container;  
 Figure 4C is a third front, cross-sectional view of a portion of the container;  
 Figure 4D is a fourth front, cross-sectional view of a

portion of the container;  
 Figure 5A is a cross-sectional view of an alternative second storage compartment; and  
 Figure 5B is a cross-sectional view of a further alternative second storage compartment.  
 Figure 1 is an exploded view of a container for aerosol-generating articles.

**[0112]** The container 100 comprises a housing 102 having an opening 104. The container 100 also comprises a hinged lid 106. The housing 102 comprises a housing bottom wall, a first side wall, a second side wall opposing the first side wall, a front wall, and a back wall opposing the front wall. The back wall has a hinge line about which the lid 106 pivots. The lid 106 can pivot about the hinge line between an open position in which the lid 106 exposes the opening 104 and a closed position in which the lid 106 covers the opening 104. The lid 106 is shown in the open position in Figure 1.

**[0113]** The lid 106 comprises a cutting means 108. In the embodiment shown in Figure 1, the cutting means 108 comprises a cutting portion and a support portion. The cutting portion can be seen in Figure 1 but the support portion cannot be seen because it is hidden behind a side wall of the lid 106. The support portion is formed of cardboard and is substantially planar. The cutting portion is a blade formed of metal and is supported by the support portion. The support portion comprises a protrusion which also cannot be seen in Figure 1. The protrusion protrudes in a direction which is substantially perpendicular to a plane of the support portion.

**[0114]** The container 100 further comprises a first storage compartment 110 and a second storage compartment 112. In Figure 1, the first storage compartment 110 and the second storage compartment 112 are shown when removed from the container 100.

**[0115]** The first storage compartment 110 comprises a first storage compartment bottom wall and four side walls extending substantially upwards from the first storage compartment bottom wall. The first storage compartment 110 essentially comprises five walls of a hollow cuboid. In the embodiment shown in Figure 1, all of the walls of the first storage compartment 110 are formed from cardboard. The first storage compartment 110 is suitable for storing unused aerosol-generating articles, though none are shown in Figure 1.

**[0116]** The second storage compartment 112 comprises a second storage compartment bottom wall, a second storage compartment top wall opposing the second storage compartment bottom wall, and four side walls extending between the second storage compartment bottom wall and the second storage compartment top wall. The second storage compartment 112 is essentially in the form of a hollow cuboid. The inner surface of the second storage compartment 112 is coated with a non-flammable, heat-resistant coating.

**[0117]** The second storage compartment 112 comprises a second storage compartment opening 114 for re-

ceiving a portion of an aerosol-generating article. In the embodiment shown in Figure 1, the second storage compartment opening 114 is defined in a second storage compartment first side wall and is in the form of a substantially circular aperture.

**[0118]** The first side wall of the housing 102 of the container 100 comprises a housing aperture 116. When the second storage compartment 112 is located in the container 100, the second storage compartment opening 114 is aligned with the housing aperture 116. Thus, a portion of an aerosol-generating article may be inserted simultaneously through the second storage compartment opening 114 and the housing aperture 116.

**[0119]** Figure 2 is a front, cross-sectional view of the container.

**[0120]** In Figure 2, the lid 106 is in the open position, and the first storage compartment 110 and the second storage compartment 112 are located in the container 100. In the embodiment shown in Figure 2, both the first storage compartment 110 and the second storage compartment 112 are glued to an inner surface of the bottom wall of the container 100.

**[0121]** In Figure 2, the protrusion 200 of the support portion of the cutting means 108 is visible.

**[0122]** In Figure 2, a stopping surface 202 is also visible. In the embodiment shown in Figure 2, the stopping surface 202 is a surface of a piece of cardboard which is coated in a heat-resistant coating. The piece of cardboard is glued to the inner surfaces of a second storage compartment top wall and a second storage compartment second side wall of the second storage compartment 112.

**[0123]** The stopping surface 202 is configured to abut an end of an aerosol-generating article inserted through the second storage compartment opening 114 at a point disposed between a plane of the second storage compartment first side wall and a plane of the second storage compartment second side wall. This can help to restrict the length of a distal portion of the aerosol-generating article which is severed by the cutting means 108 to being less than a distance between the plane of the second storage compartment first side wall and the plane of the second storage compartment second side wall.

**[0124]** In use, an aerosol-generating article is inserted through the housing aperture 116 and the second storage compartment opening 114 and abuts the stopping surface 202. The user then moves the lid 106 from the open position to the closed position, resulting in the cutting means 108 cutting the article into a severed, distal portion and a proximal portion. The severed, distal portion of the article then falls towards the bottom wall of the second storage compartment 112. The length of the severed, distal portion of the aerosol-generating article is restricted to being less than a distance between the plane of the second storage compartment first side wall and the plane of the second storage compartment second side wall. This prevents the severed, distal portion of the article becoming stuck, or wedged, between the second storage

compartment first side wall and the second storage compartment second side wall.

**[0125]** As shown in Figure 2, the stopping surface 202 is an inclined surface angled relative to the plane of the second storage compartment first side wall and the plane of the second storage compartment second side wall. The inclination of the stopping surface 202 is such that, when an aerosol-generating article is inserted through the housing aperture 116 and the second storage compartment opening 114 and abuts the stopping surface 202, the stopping surface 202 urges the inserted aerosol-generating article downwards. Thus, the stopping surface 202 urges the aerosol-generating article against a lower boundary of the second storage compartment aperture 114. This may make it easier for the cutting means 108 to cut through the article.

**[0126]** In Figure 2, a bed of extinguishment substrate 204 is also visible. In the embodiment shown in Figure 1, the bed of extinguishment substrate 204 is a super absorbent polymer, potassium polyacrylate, loaded with water. The bed has a height of approximately 9 millimetres.

**[0127]** Figure 3 is a side view of the container.

**[0128]** In Figure 3, the cutting means 108 is hidden behind a side wall of the lid 106. However, for illustrative purposes, dotted lines have been used to show an outline of the cutting means 108.

**[0129]** Figure 4A is a first front, cross-sectional view of a portion of the container. This Figure shows only a portion of the container 100 and the first storage compartment is not shown.

**[0130]** In Figure 4A, the lid 106 of the container 100 is in the open position. An aerosol-generating article 400 is shown. The aerosol-generating article 400 comprises a combustible heat source 402.

**[0131]** Figure 4B is a second front, cross-sectional view of a portion of the container. This Figure shows only a portion of the container 100 and the first storage compartment is not shown.

**[0132]** In Figure 4B, the lid 106 of the container 100 is in the open position and an end of the aerosol-generating article 400 comprising the combustible heat source 402 has been inserted through the housing aperture 116 and the second storage compartment opening 114. The end of the aerosol-generating article 400 comprising the combustible heat source 402 has abutted the stopping surface 202.

**[0133]** Figure 4C is a third front, cross-sectional view of a portion of the container. This Figure shows only a portion of the container 100 and the first storage compartment is not shown.

**[0134]** Figure 4C shows the container 100 immediately after the user has moved the lid 106 of the container 100 from the open position, as shown in Figure 4B, to the closed position. Thus, in the third position of use, the lid 106 is in the closed position.

**[0135]** As the user moves the lid 106 of the container 100 from the open position to the closed position, the

cutting portion of the cutting means 108 contacts the aerosol-generating article and cuts through the aerosol-generating article.

**[0136]** The cutting portion fully cuts through the aerosol-generating article to separate the aerosol-generating article 400 into a distal portion comprising the combustible heat source 402 and a proximal portion.

**[0137]** After the cutting portion has fully cut through the aerosol-generating article, the support portion of the cutting means 108 contacts the aerosol-generating article. Specifically, the protrusion 200 of the support portion of the cutting means 108 contacts the severed, distal portion of the aerosol-generating article. The protrusion 200 applies a force to the severed, distal portion. This force acts to force the distal portion in a distal direction. The force acts to force the distal portion further into the second storage compartment 112. Figure 4C shows the container 100 immediately after the lid 106 reaches the closed position.

**[0138]** When the lid 106 is in the closed position, the cutting means 108 occludes the second storage compartment opening such that the second storage compartment 112 is substantially hermetically sealed. Thus, after the lid 106 reaches the closed position, any lit combustible heat source within the second storage compartment 112 is starved of oxygen, and thereby extinguished.

**[0139]** Figure 4D is fourth a front, cross-sectional view of a portion of the container. This Figure shows only a portion of the container 100 and the first storage compartment is not shown.

**[0140]** In Figure 4D, the lid 106 is in the closed position. Figure 4D shows the container 100 a short time after the lid 106 has reached the closed position. Thus, in Figure 4D, the severed, distal portion of the aerosol-generating article, which comprises the combustible heat source 402, is in free-fall. At this stage, despite being extinguished due to a lack of oxygen, the distal portion is still relatively hot.

**[0141]** However, the distal portion will fall into the bed of extinguishment substrate 204 in the second storage compartment 112. Water from the bed of extinguishment substrate 204 will vaporise upon contact with the relatively hot distal portion and therefore rapidly reduce the temperature of the distal portion.

**[0142]** Figure 5A is a cross-sectional view of an alternative second storage compartment. The alternative second storage compartment 500 could replace the second storage compartment 112 described in relation to previous Figures.

**[0143]** The alternative second storage compartment 500 comprises a second storage compartment opening 502 defined in a second storage compartment first side wall 504, and a second storage compartment second side wall 506.

**[0144]** The alternative second storage compartment 500 also comprises a stopping surface 508. The stopping surface 508 is disposed at a point between a plane 510 of the second storage compartment first side wall 504

and a plane 512 of the second storage compartment second side wall 506.

**[0145]** In the embodiment shown in Figure 5A, the stopping surface 508 is a surface of a further wall of the second storage compartment 500. Specifically, in this embodiment, the stopping surface 508 is a surface of an inclined wall of the second storage compartment extending from an upper edge of the second storage compartment second side wall 506 to an edge of a second storage compartment top wall 514.

**[0146]** In use, the stopping surface 508 of the embodiment shown in Figure 5A functions in the same way as the stopping surface 202 described in relation to Figures 2, 4A, 4B, 4C and 4D.

**[0147]** Figure 5B is a cross-sectional view of a further alternative second storage compartment. The further alternative second storage compartment 550 could replace the second storage compartment 112 described in relation to previous Figures.

**[0148]** The further alternative second storage compartment 550 comprises a second storage compartment opening 552 defined in a second storage compartment first side wall 554, and a second storage compartment second side wall 556.

**[0149]** The further alternative second storage compartment 550 also comprises a stopping surface 558. The stopping surface 558 is disposed at a point between a plane 560 of the second storage compartment first side wall 554 and a plane 562 of the second storage compartment second side wall 556.

**[0150]** In the embodiment shown in Figure 5A, the stopping surface 558 is a surface of a component which resides in an interior volume of the further alternative second storage compartment 550. Specifically, in the embodiment shown in Figure 5B, the stopping surface 558 is a surface of a panel which extends down from a second storage compartment top wall 564 and into the interior volume of the further alternative second storage compartment 550.

**[0151]** In use, the stopping surface 558 of the embodiment shown in Figure 5B functions in a similar way to the stopping surface 202 described in relation to Figures 2, 4A, 4B, 4C and 4D. However, if the stopping surface 558 shown in Figure 5B is sufficiently rigid to remain substantially vertically oriented when an aerosol-generating article abuts the stopping surface 558, then the stopping surface 558 will not urge the abutting aerosol-generating article downwards.

## Claims

1. A container for aerosol-generating articles, the container comprising:

a housing having an opening; and  
a hinged lid movable relative to the housing between an open position in which the lid exposes

- the opening and a closed position in which the lid covers the opening,  
wherein the hinged lid comprises a cutting means for cutting an aerosol-generating article.
- 5
2. A container according to claim 1, wherein the cutting means is configured to cut the aerosol-generating article as a result of movement of the hinged lid from the open position to the closed position.
- 10
3. A container according to any preceding claim, wherein the housing comprises a first storage compartment for storing unused aerosol-generating articles, and a second storage compartment.
- 15
4. A container according to claim 3, wherein the second storage compartment comprises an extinguishment substrate.
- 20
5. A container according to claim 3 or 4, wherein the second storage compartment comprises a second storage compartment opening for receiving at least a portion of the aerosol-generating article.
- 25
6. A container according to claim 5, wherein the housing comprises a housing aperture for receiving at least the portion of the aerosol-generating article, and the housing aperture is substantially aligned with the second storage compartment opening.
- 30
7. A container according to any of claims 3 to 6, wherein the second storage compartment is sealed from the first storage compartment when the hinged lid is in the closed position.
- 35
8. A container according to any of claims 3 to 7, wherein the second storage compartment is substantially hermetically sealed when the hinged lid is in the closed position.
- 40
9. A container according to claim any of claims 5 to 8, wherein, when the hinged lid is in the closed position, the cutting means occludes the second storage compartment opening.
- 45
10. A container according to any preceding claim, wherein the cutting means comprises a cutting portion and a support portion, and the support portion comprises a protrusion.
- 50
11. A container according to claim 10, wherein the support portion is substantially planar and the protrusion protrudes in a direction which is substantially perpendicular to a plane of the support portion.
- 55
12. A container according to any preceding claim, wherein the cutting means is located on an underside of the hinged lid.
13. A container according to any of claims 3 to 12, wherein at least part of the cutting means is located between the second storage compartment and the housing when the hinged lid is in the closed position.
14. A container according to any of claims 5 to 12, wherein the second storage compartment opening is defined in a second storage compartment first side wall, and the second storage compartment comprises a stopping surface at a point disposed between a plane of the second storage compartment first side wall and a plane of a second storage compartment second side wall.
15. A container according to claim 14, wherein the stopping surface is an inclined surface angled relative to the plane of the second storage compartment first side wall and the plane of the second storage compartment second side wall.

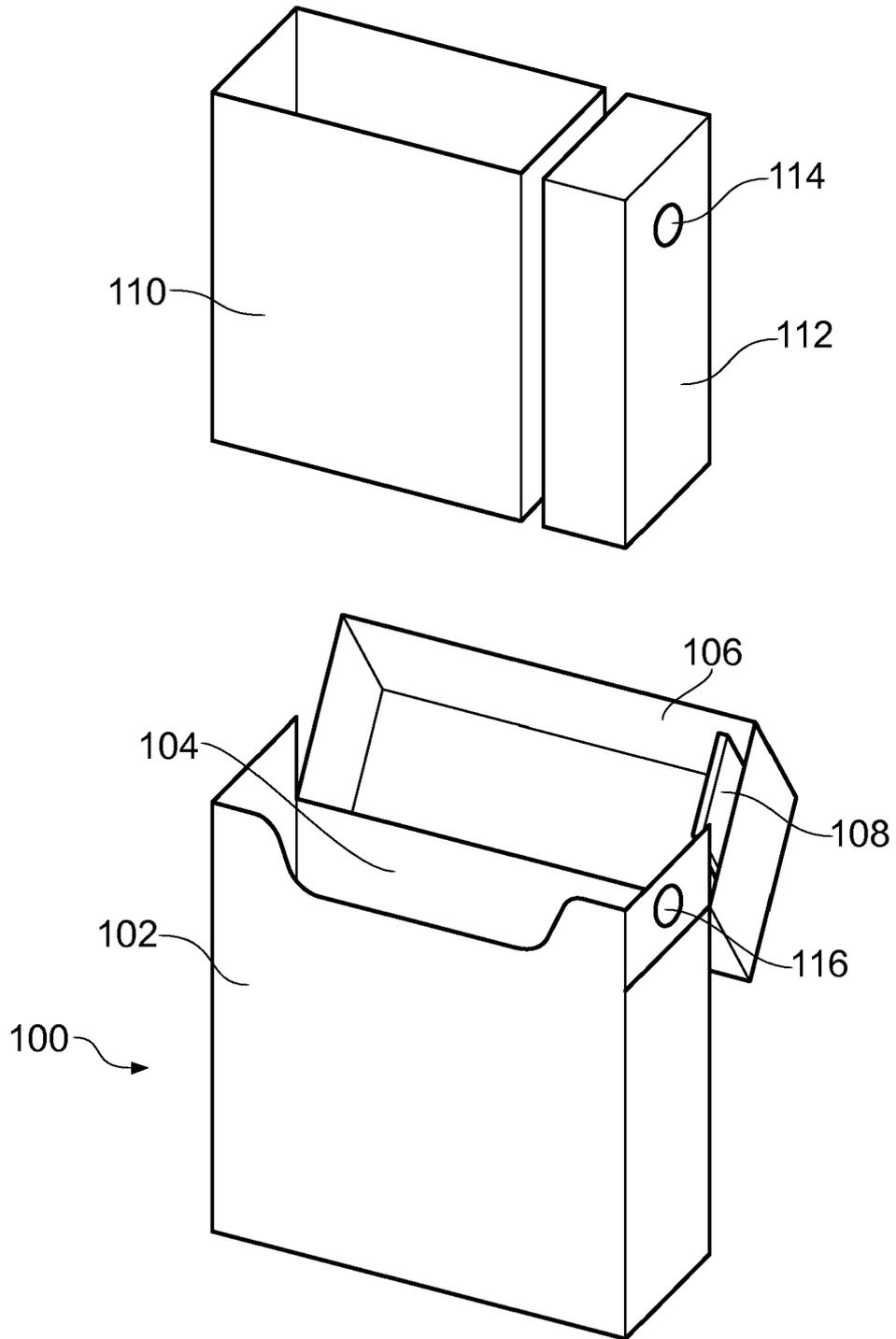


FIG. 1

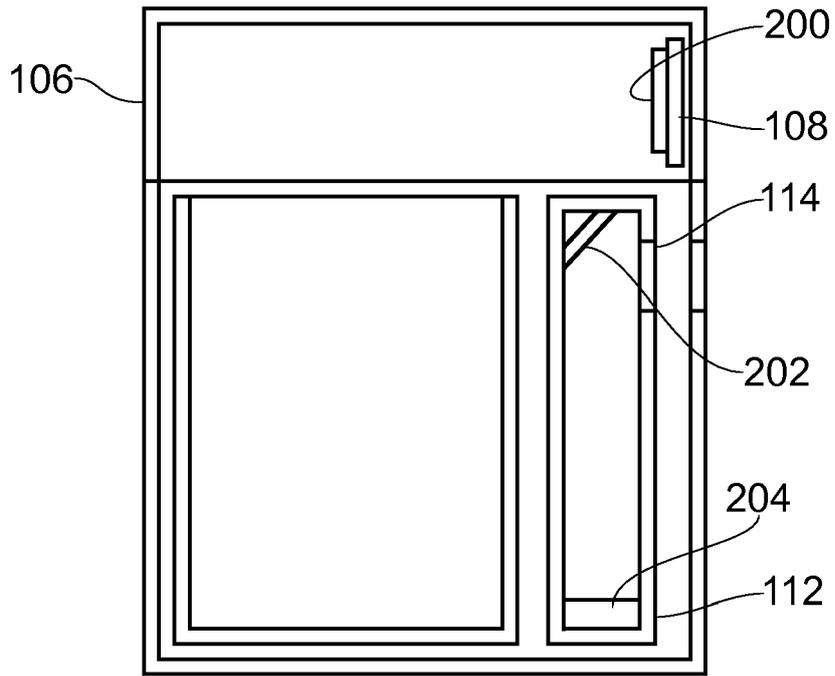


FIG. 2

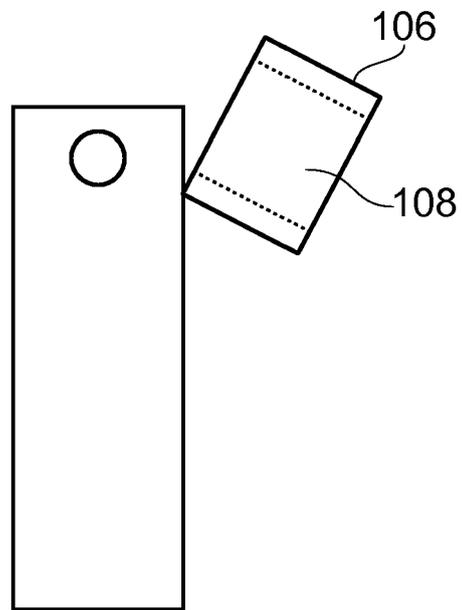


FIG. 3

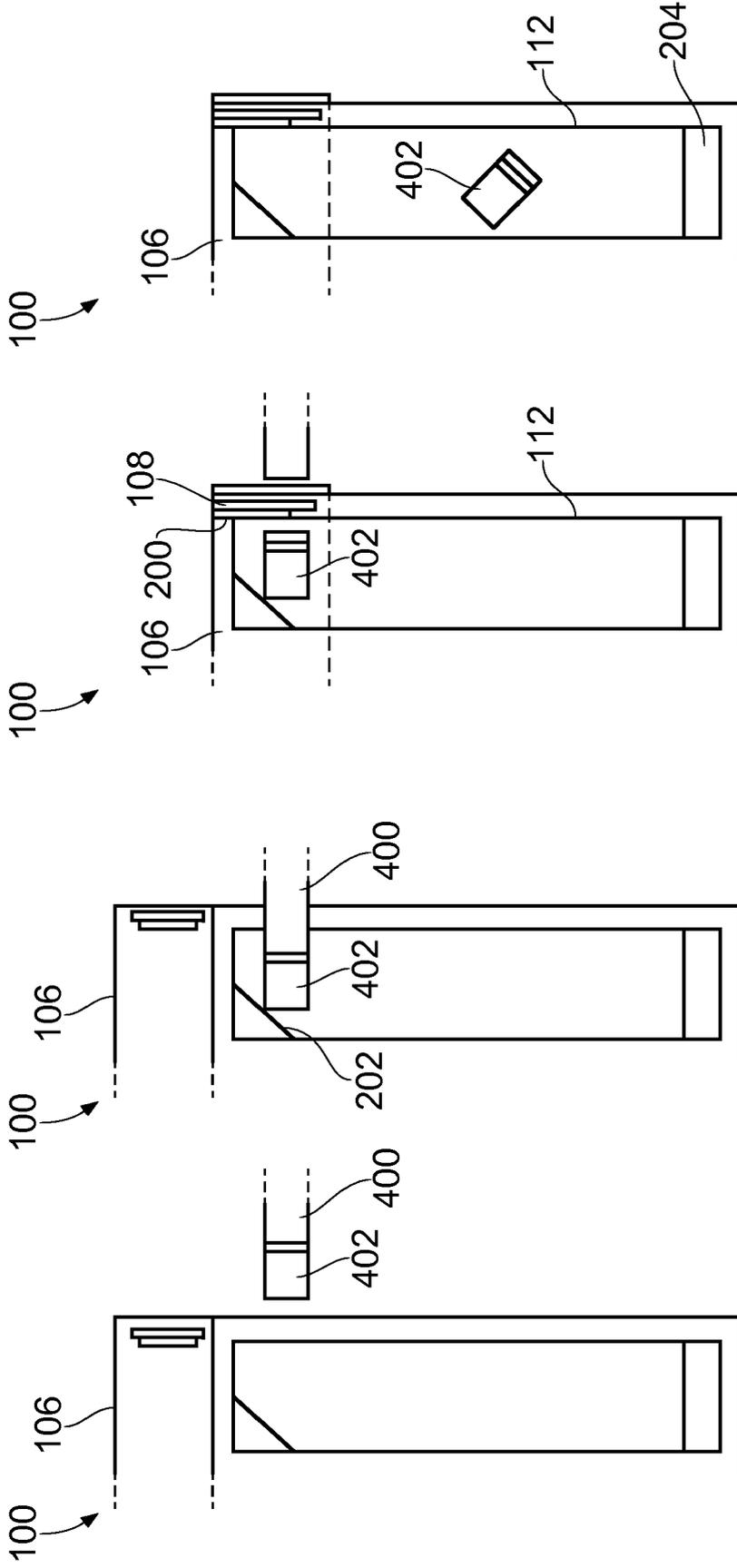


FIG. 4D

FIG. 4C

FIG. 4B

FIG. 4A

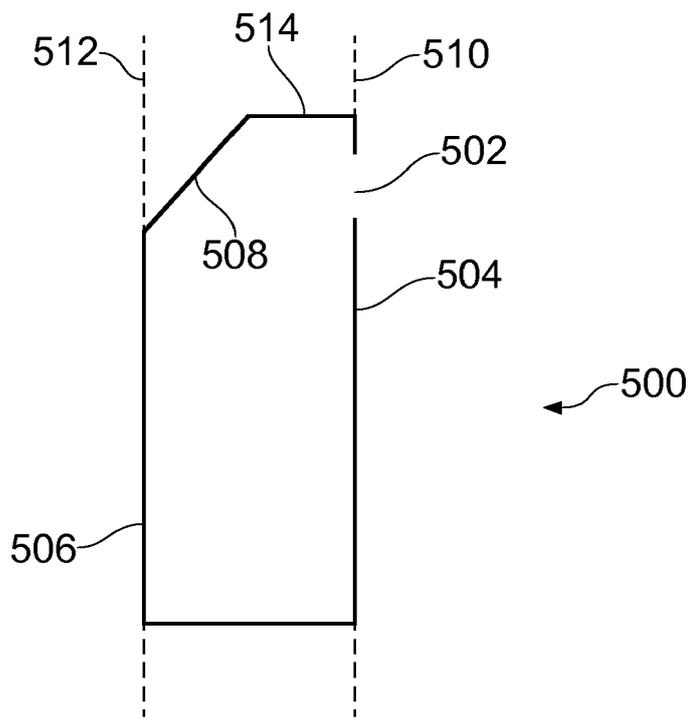


FIG. 5A

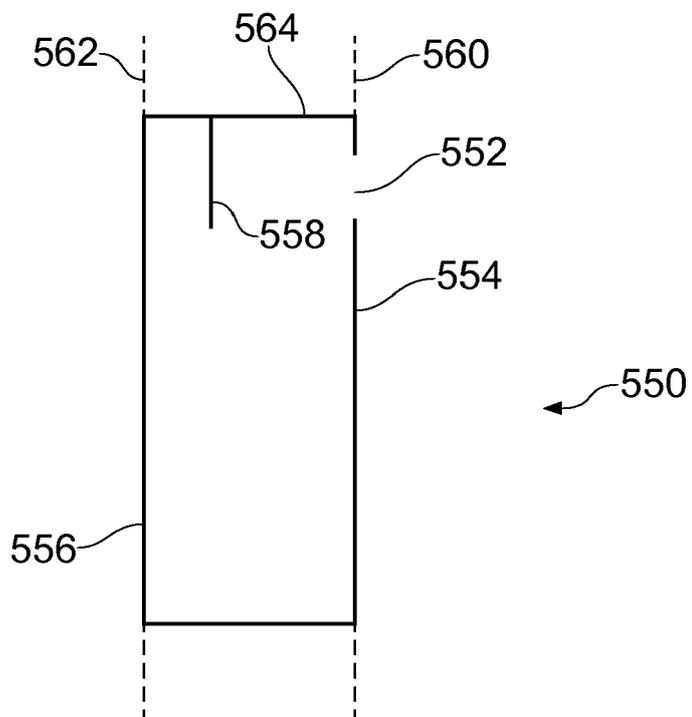


FIG. 5B



EUROPEAN SEARCH REPORT

Application Number  
EP 19 19 2494

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DOCUMENTS CONSIDERED TO BE RELEVANT			
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The present search report has been drawn up for all claims			
Place of search <b>Munich</b>		Date of completion of the search <b>13 December 2019</b>	Examiner <b>Lämmel, Gunnar</b>
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