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(54) **PORTABLE CONTAINER SYSTEM AND METHOD OF PRODUCING SAME**

(71) Applicant: **KacePack Ltd.**, Sheug Wan (HK)

(72) Inventors: **James Louis CHU**, Sheung Wan (HK); **Tak Ki KWOK**, Sheung Wan (HK)

(73) Assignee: **KacePack Ltd.**, Sheung Wan (HK)

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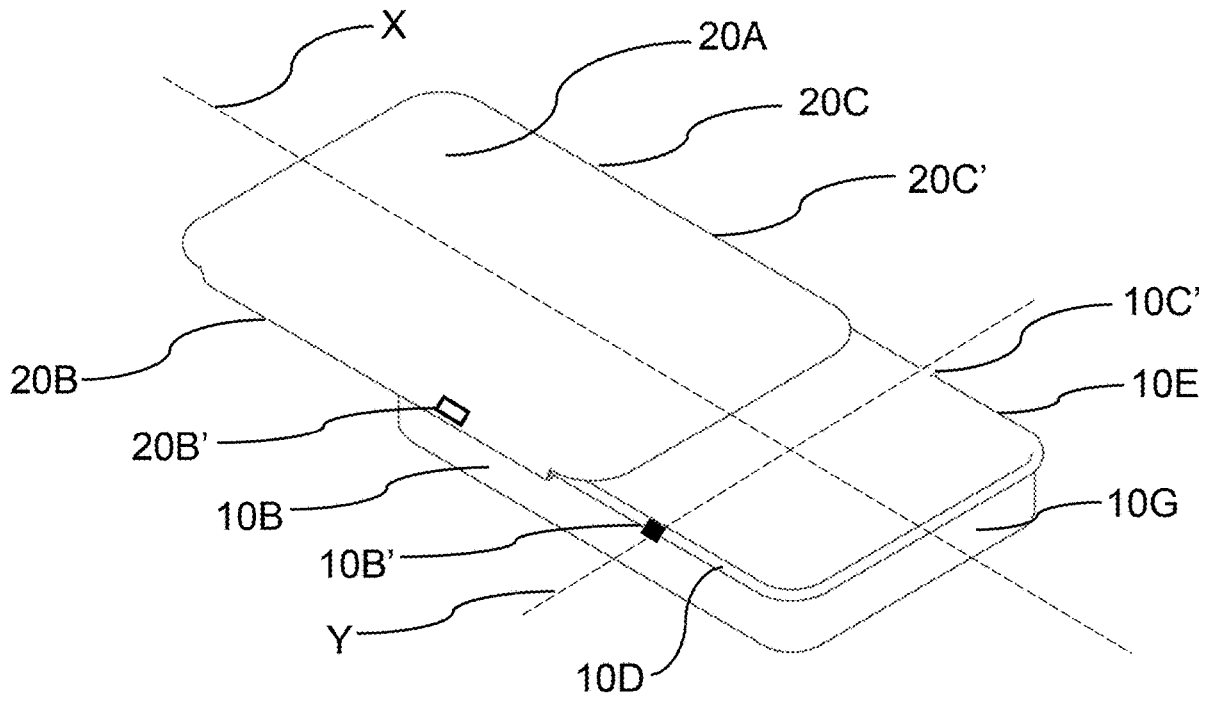
(57) **ABSTRACT**

A portable container system including: an insert tray having a tray body with at least one tray recess formed therein; and a rigid container having a chamber therein configured for receiving the insert tray; wherein the insert tray includes at least one first securement member extending from the tray body, said first securement member being configured for arrangement in to a first configuration in which the first securement member is moved relatively inwardly towards a side-wall of the tray body as the insert tray is inserted in to the chamber of the rigid container in a direction inwardly of an opening of the chamber, and, said first securement member being configured for arrangement in to a second configuration in which the first securement member is moved relatively outwardly away from the side-wall of the tray body once the insert tray has been inserted in to the chamber of the rigid container, and wherein, the rigid container includes at least one second securement member protruding inwardly of the chamber from an inner surface of a side-wall of the rigid container, whereby when the at least one first securement member of the insert tray is arranged in the second configuration after being inserted in to the chamber, the at least one first securement member is configured to abut against the at least one second securement member so as to restrict movement of the insert tray in a direction outwardly of the opening of the chamber; and wherein a portion of the insert tray is configured for biasing the at least one securement member in to the second configuration from the first configuration.



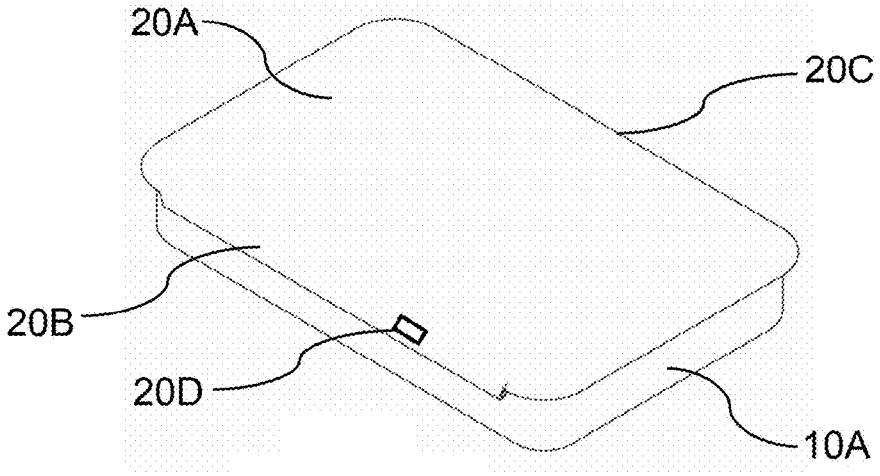

20A
20C
20B
20D
10A

FIG. 1A

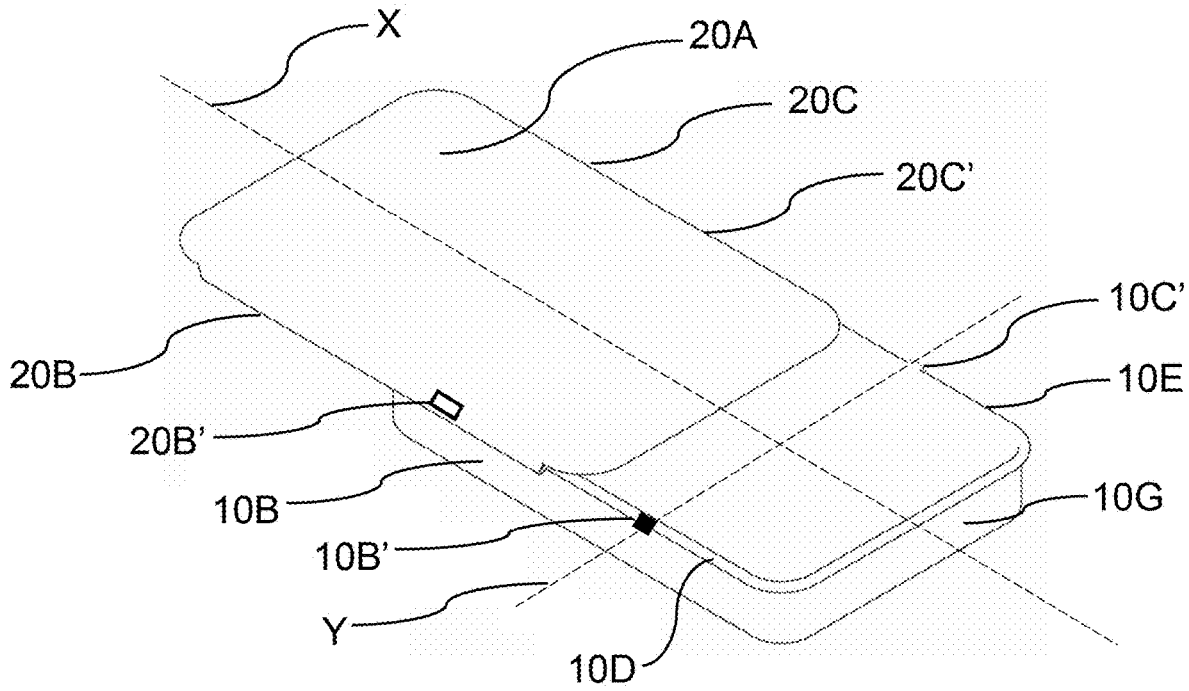

X
20A
20C
20C'
10C'
20B
10E
20B'
10B
10G
10B'
Y
10D

FIG. 1B

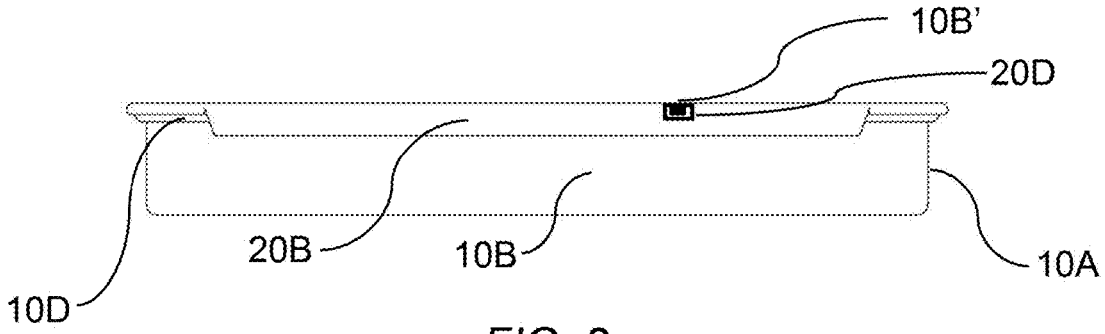


FIG. 2

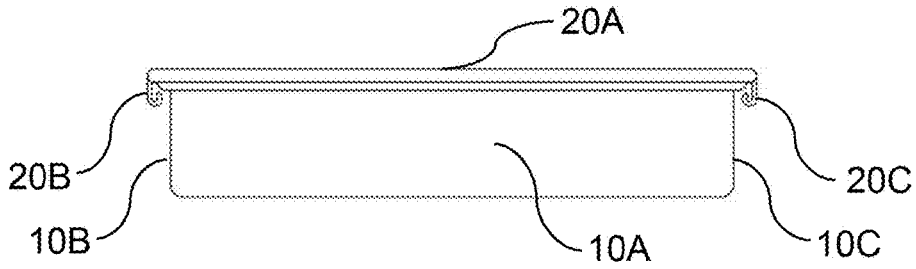


FIG. 3

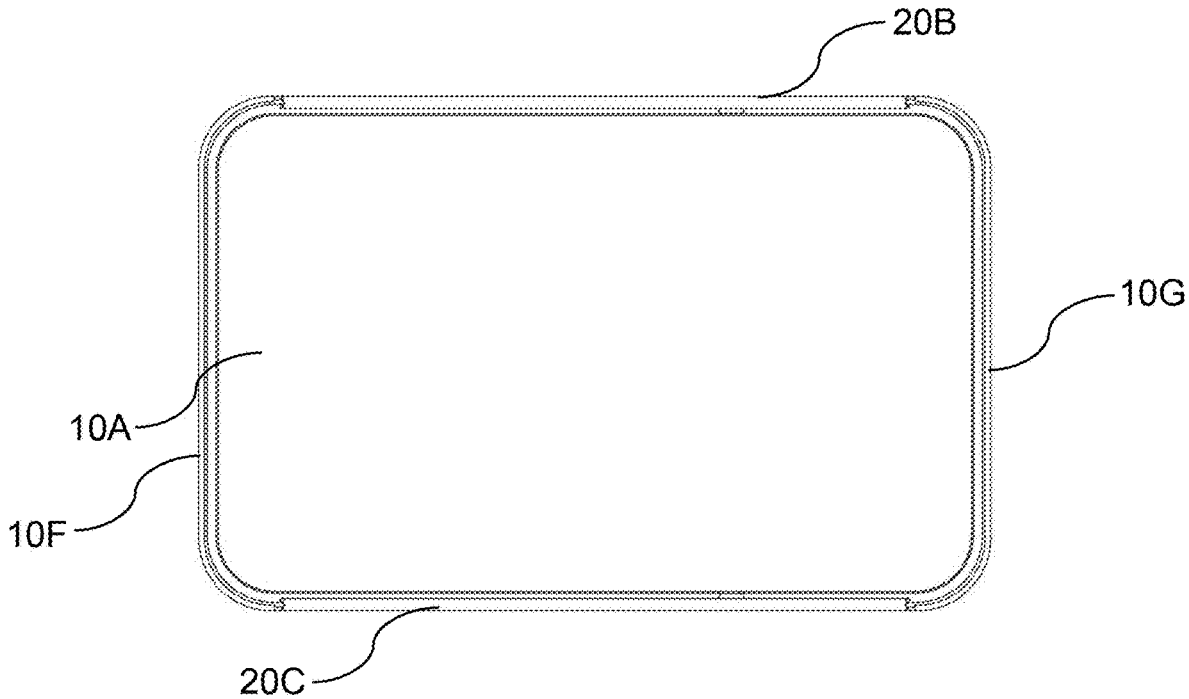


FIG. 4

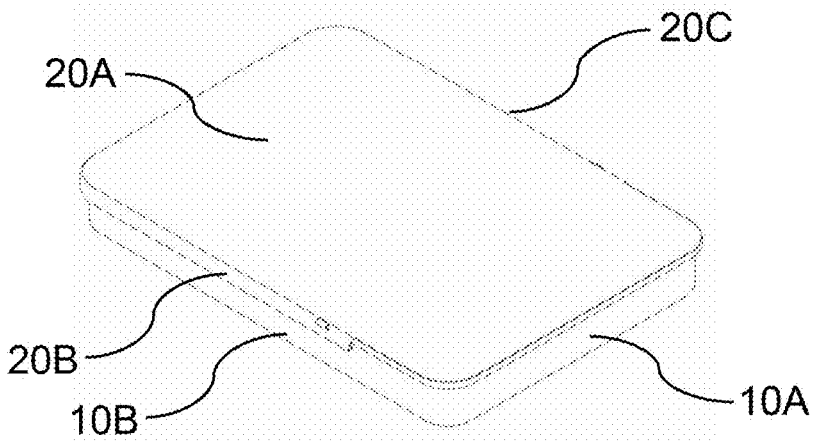


FIG. 5A

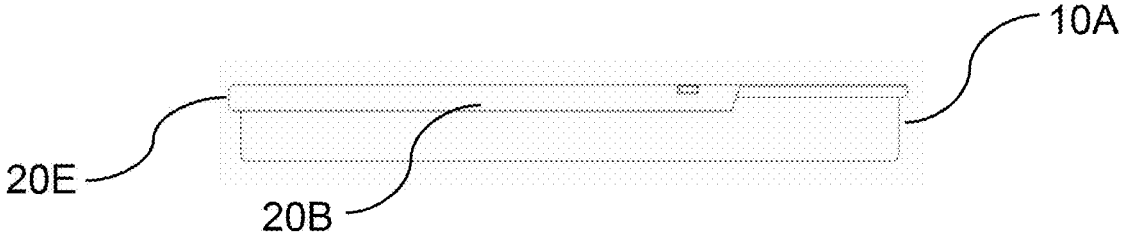


FIG. 5B

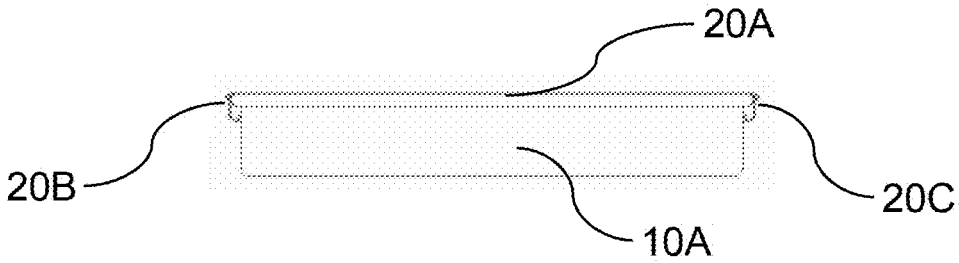


FIG. 5C

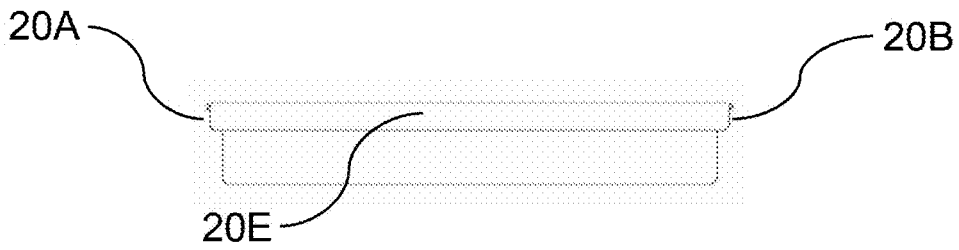


FIG. 5D

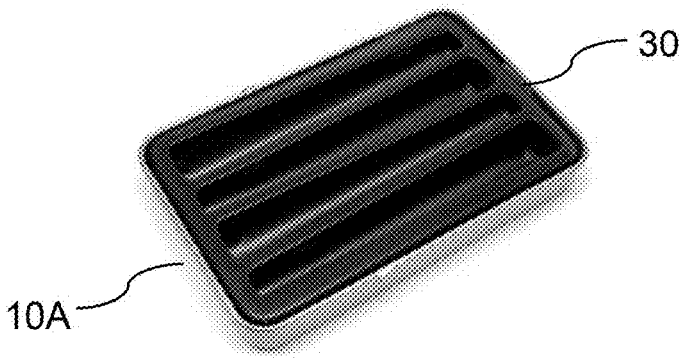


FIG. 6A

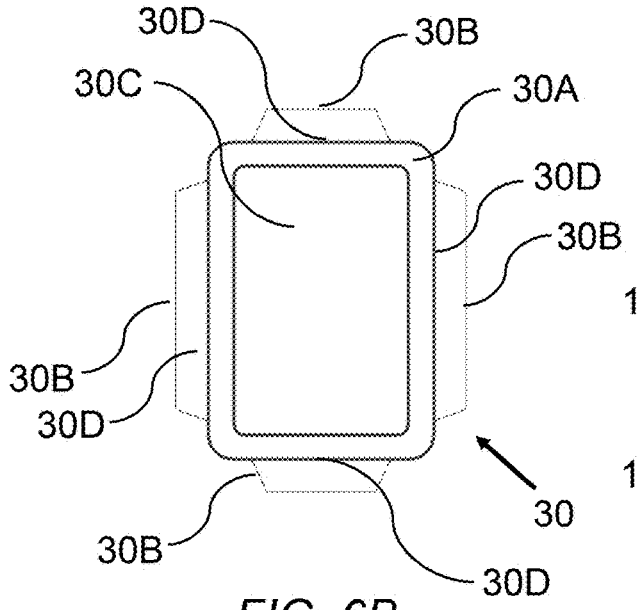


FIG. 6B

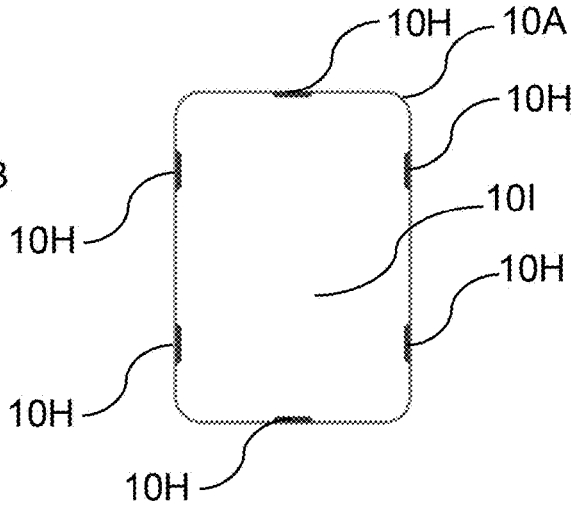


FIG. 6C

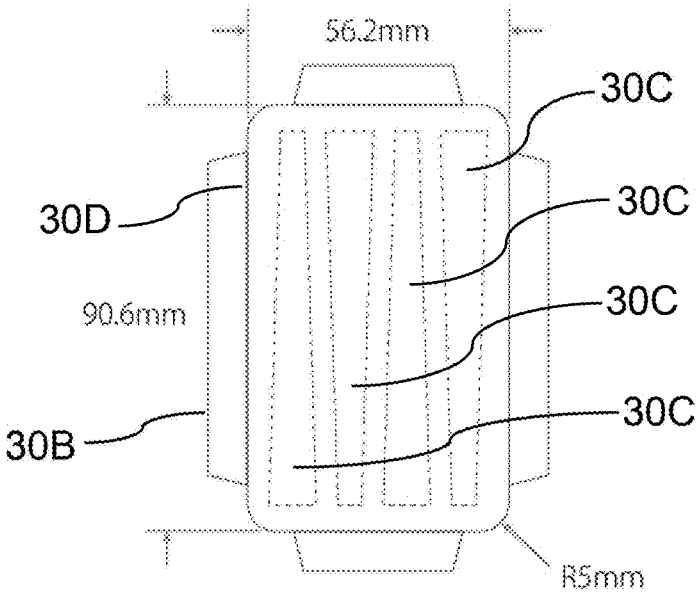

56.2mm
30C
30D
30C
90.6mm
30C
30B
30C
R5mm

FIG. 7A

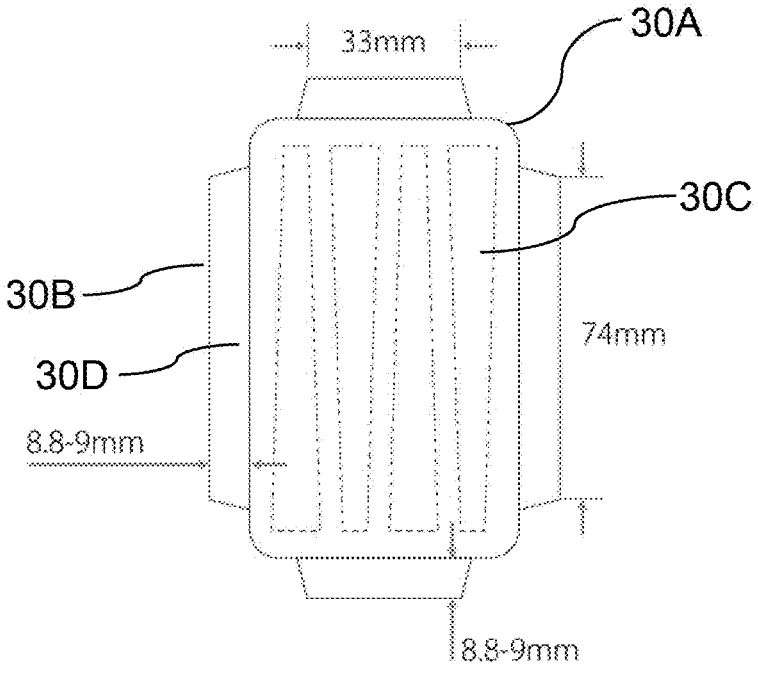

33mm
30A
30C
30B
74mm
30D
8.8-9mm
8.8-9mm

FIG. 7B

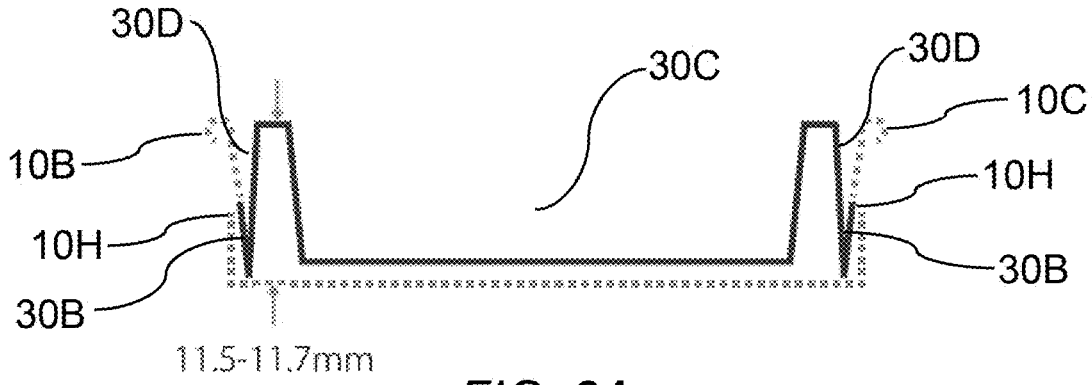


FIG. 8A

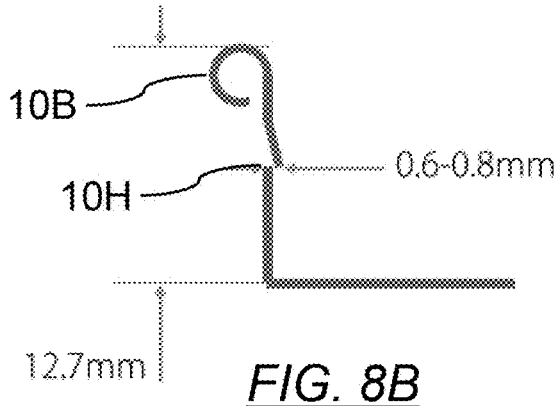


FIG. 8B

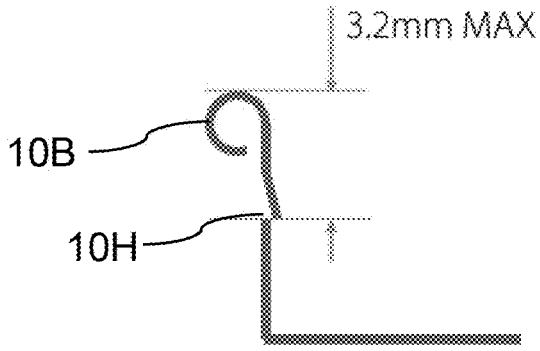


FIG. 8C

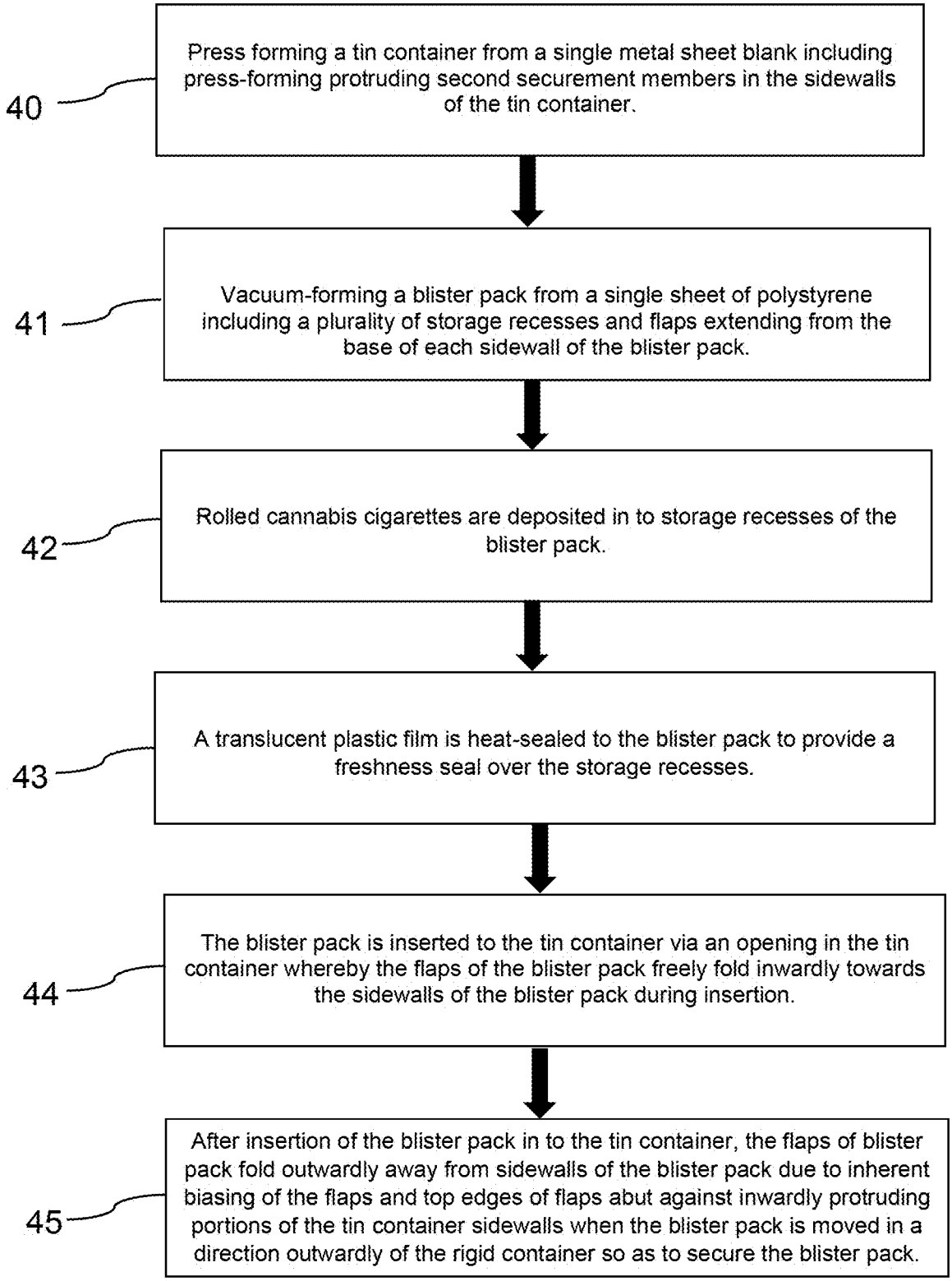

40
Press forming a tin container from a single metal sheet blank including press-forming protruding second securement members in the sidewalls of the tin container.
41
Vacuum-forming a blister pack from a single sheet of polystyrene including a plurality of storage recesses and flaps extending from the base of each sidewall of the blister pack.
42
Rolled cannabis cigarettes are deposited in to storage recesses of the blister pack.
43
A translucent plastic film is heat-sealed to the blister pack to provide a freshness seal over the storage recesses.
44
The blister pack is inserted to the tin container via an opening in the tin container whereby the flaps of the blister pack freely fold inwardly towards the sidewalls of the blister pack during insertion.
45
After insertion of the blister pack in to the tin container, the flaps of blister pack fold outwardly away from sidewalls of the blister pack due to inherent biasing of the flaps and top edges of flaps abut against inwardly protruding portions of the tin container sidewalls when the blister pack is moved in a direction outwardly of the rigid container so as to secure the blister pack.

FIG. 9

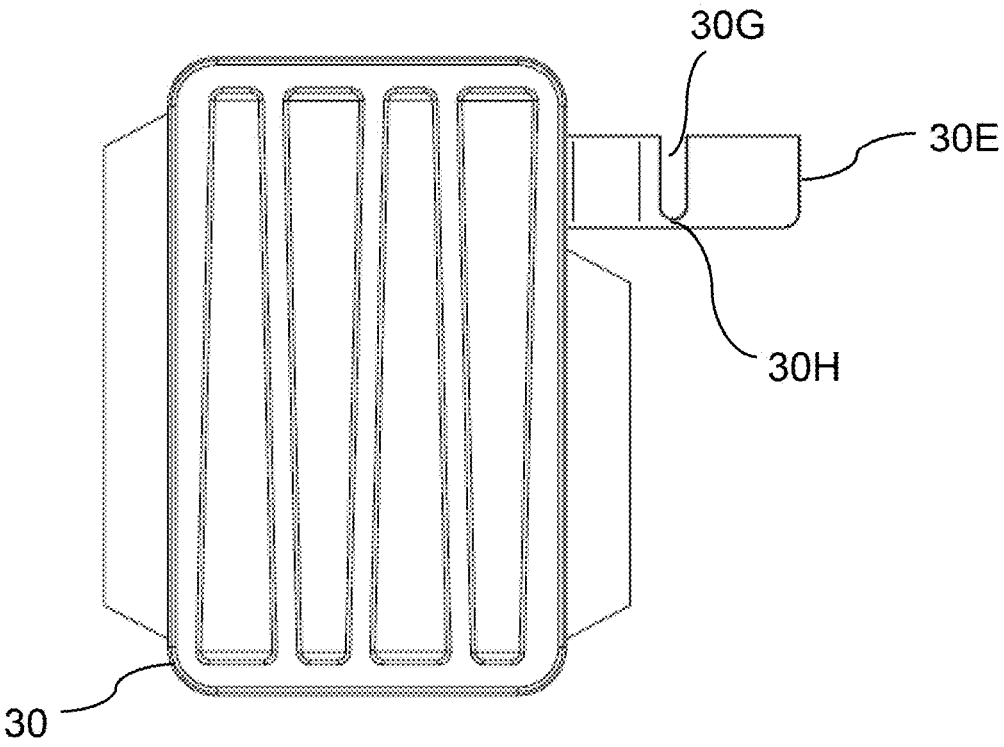


FIG. 10A

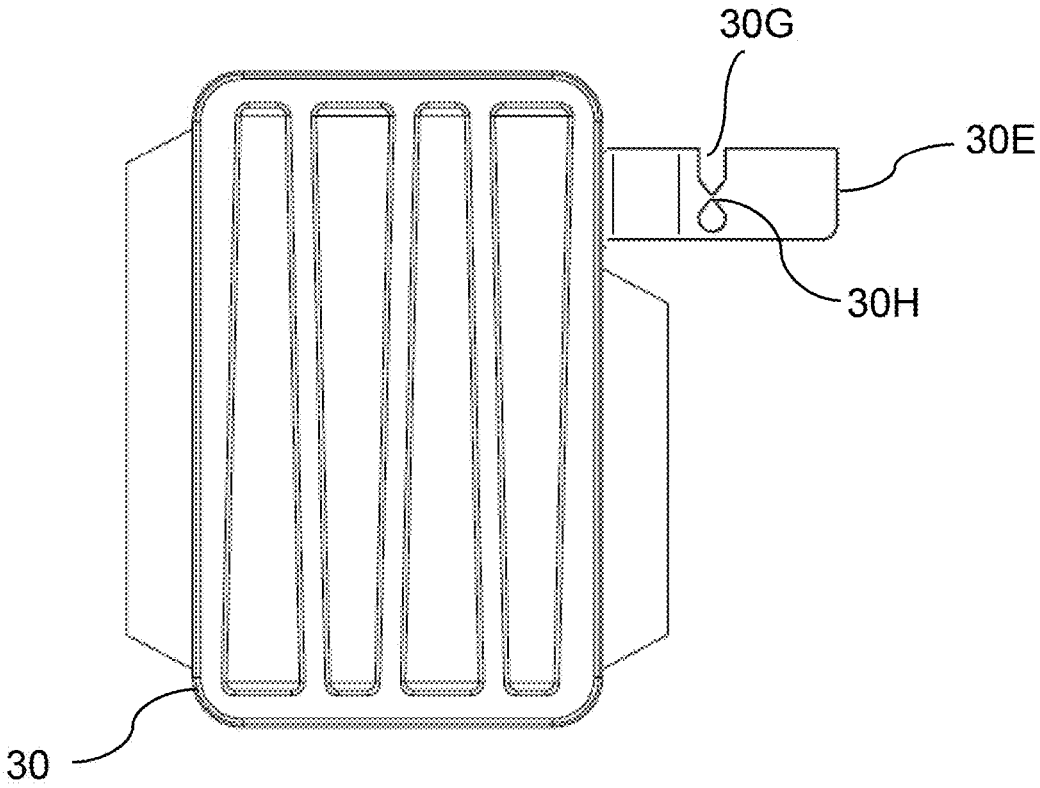


FIG. 10B

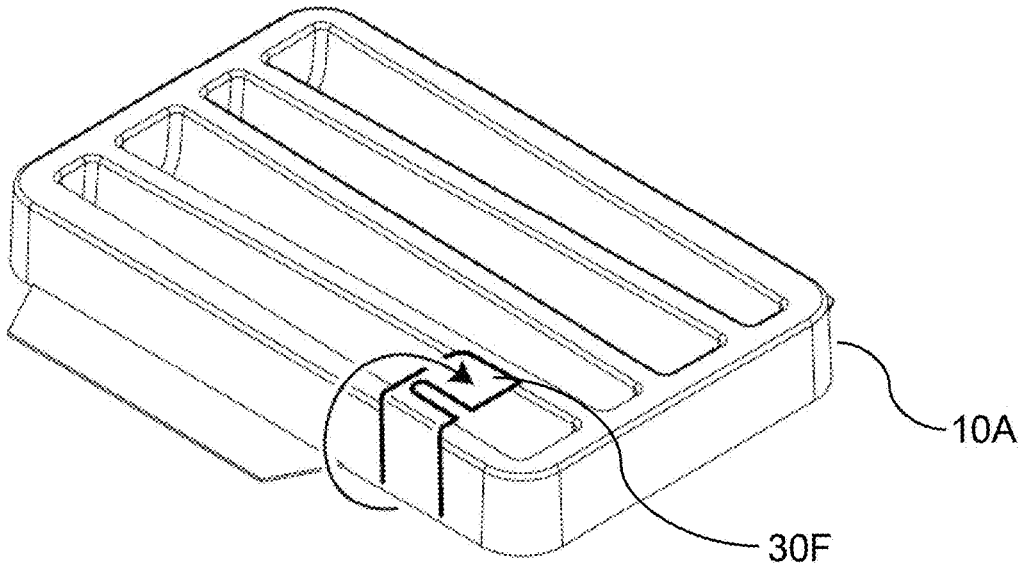


FIG. 11

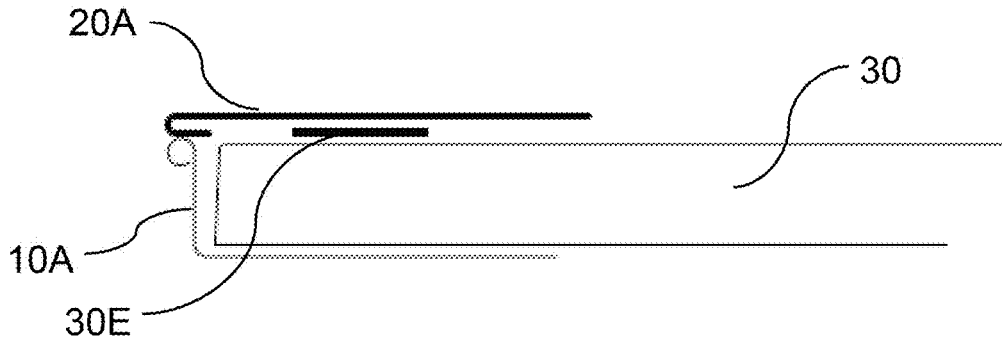


FIG. 12A

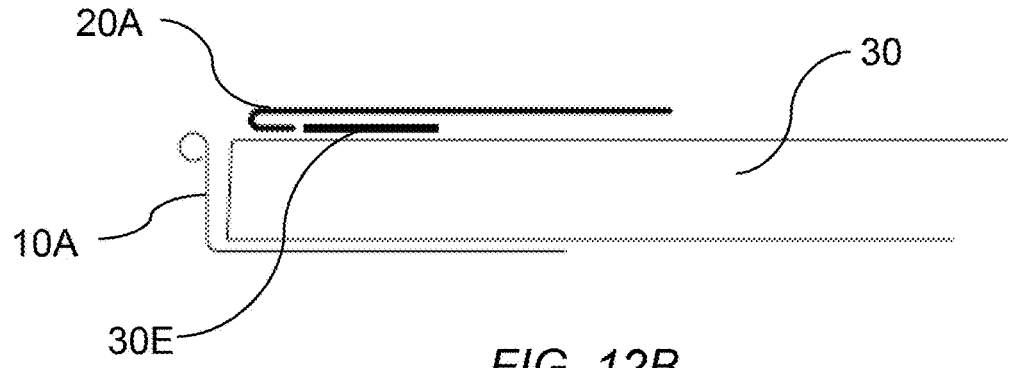


FIG. 12B

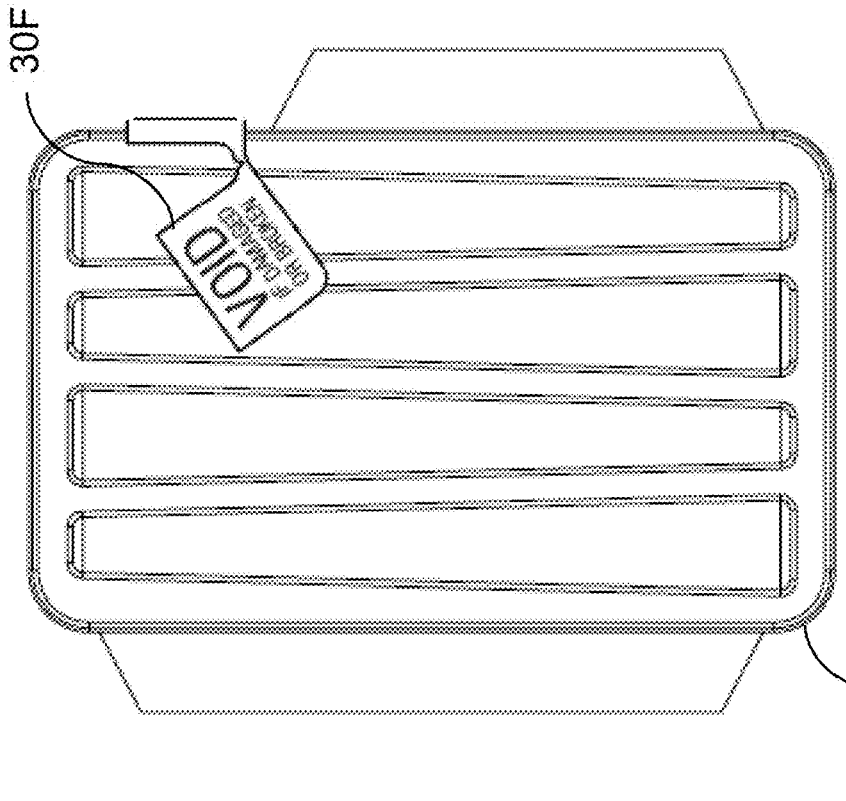


FIG. 13B

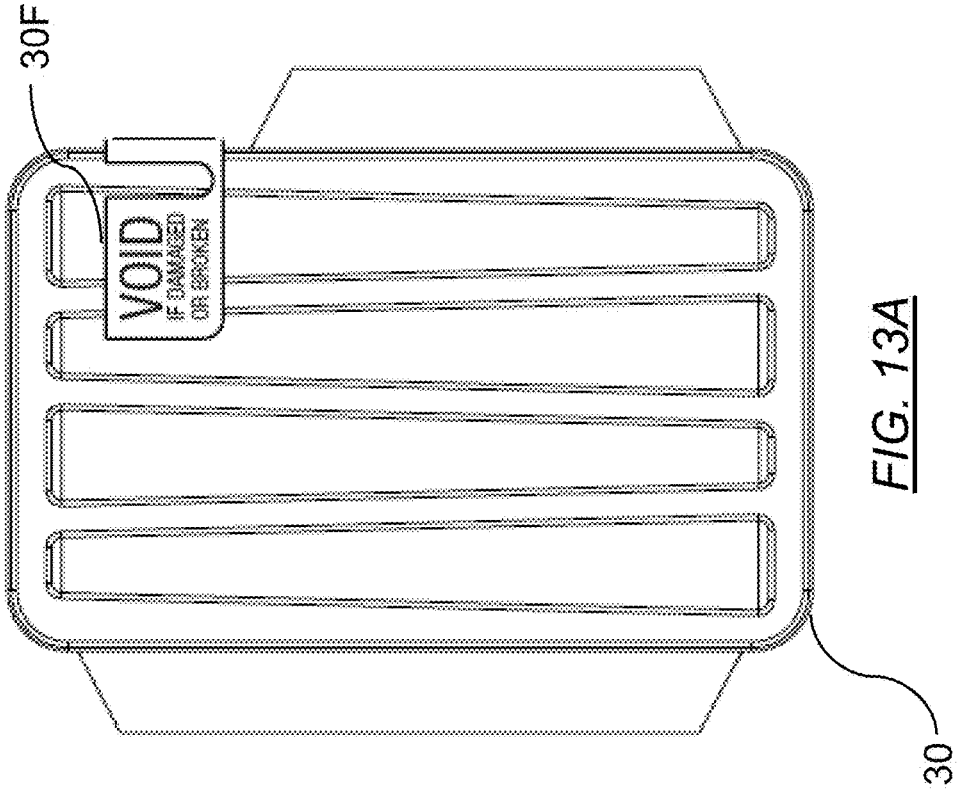


FIG. 13A

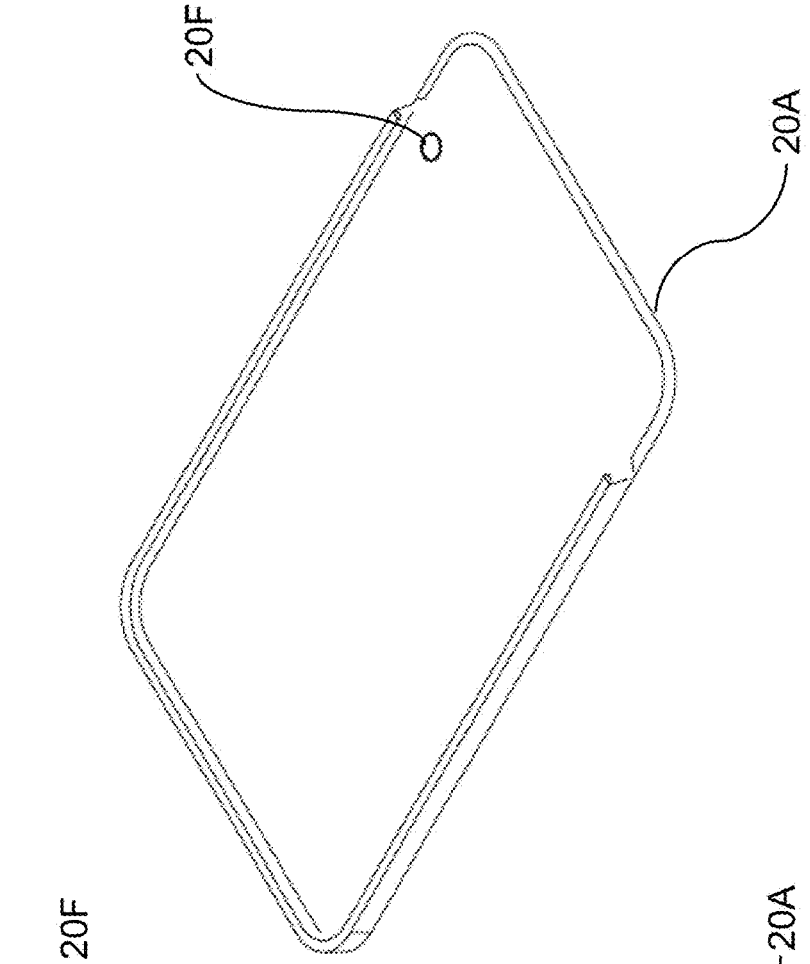


FIG. 14B

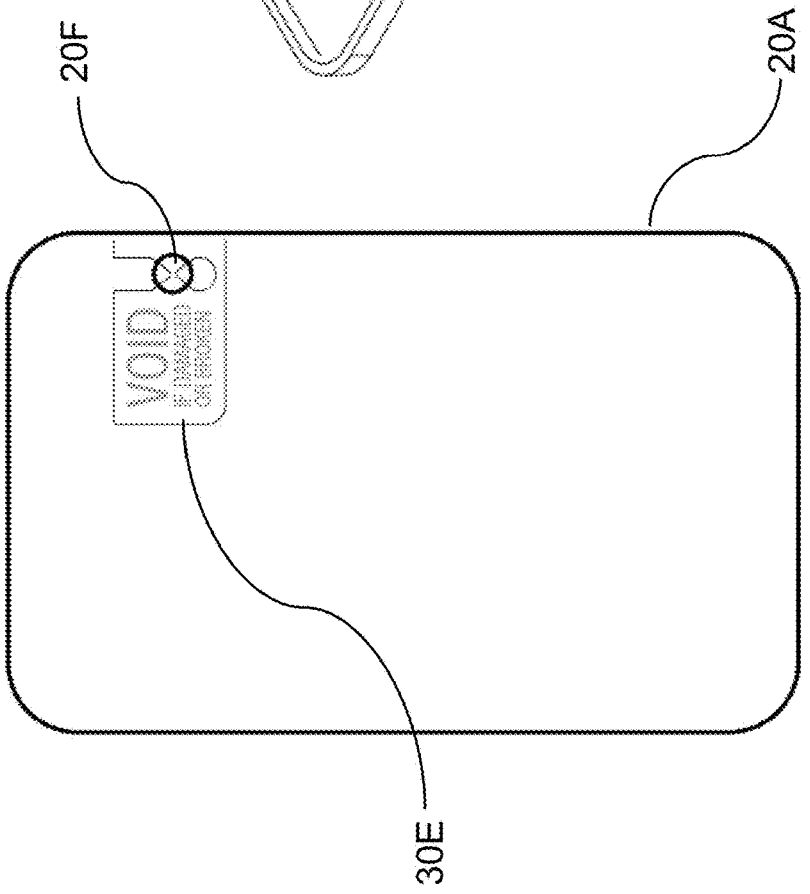


FIG. 14A

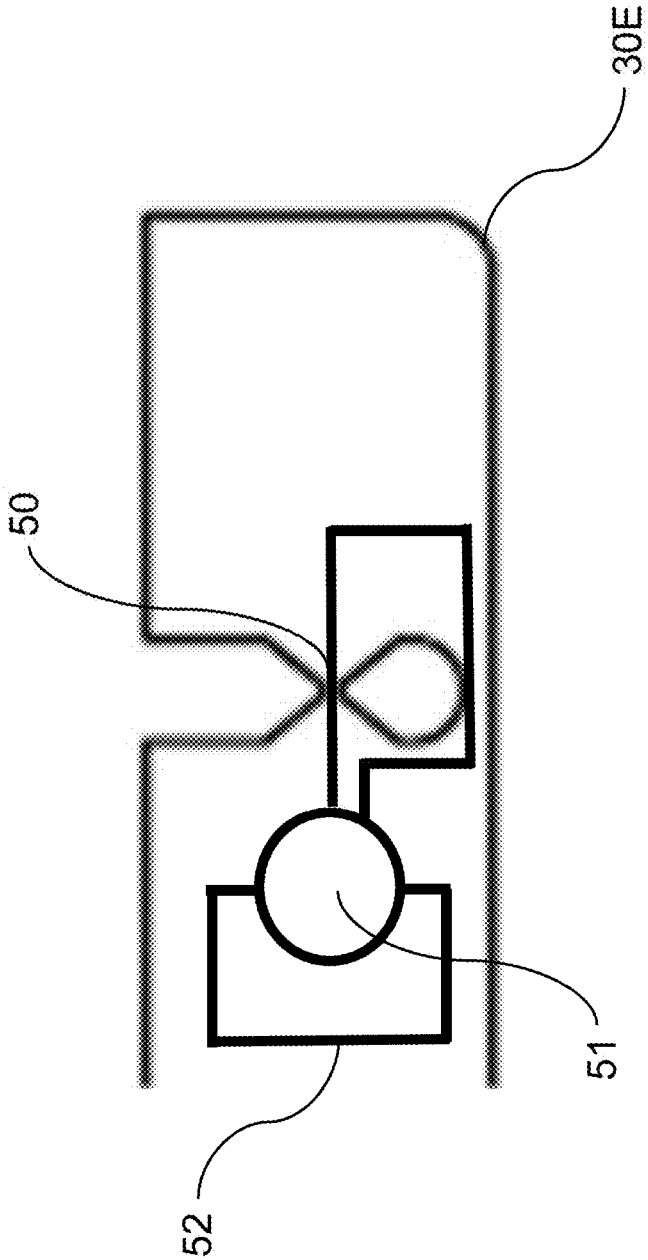


FIG. 15

PORTABLE CONTAINER SYSTEM AND METHOD OF PRODUCING SAME

TECHNICAL FIELD

[0001] The present invention relates to portable container systems, and in particular, portable container systems which may be used for storing items such as rolled cannabis cigarettes and the like.

BACKGROUND OF THE INVENTION

[0002] Currently, consumers of cannabis will typically need to self-roll their own cannabis cigarettes for consumption. This tends to require some time and effort to properly roll the cigarette. To save time, a consumer may roll several cannabis cigarettes at once in advance for later use, however, the pre-rolled cannabis cigarettes will become stale if not used after a given amount of time resulting in wastage. Further, such cannabis products may typically be stored in a pocket-sized container or the like, however, many such tins lack suitable child-safety mechanisms to prevent access to the contents of the container by young children. Further, when such rolled cannabis cigarettes are stored in existing containers, they tend to be unsecured within the container and may break or unravel when the container is moved about.

SUMMARY OF THE INVENTION

[0003] The present invention seeks to alleviate at least one of the above-described problems.

[0004] The present invention may involve several broad forms. Embodiments of the present invention may include one or any combination of the different broad forms herein described.

[0005] In one broad form, the present invention provides a portable container system including:

[0006] an insert tray having a tray body with at least one tray recess formed therein; and

[0007] a rigid container having a chamber disposed therein configured for receiving the insert tray;

[0008] wherein the insert tray includes at least one first securement member extending from the tray body, said first securement member being configured for arrangement in to a first configuration in which the first securement member is moved relatively inwardly towards a side-wall of the tray body as the insert tray is inserted in to the chamber of the rigid container in a direction inwardly of an opening of the chamber, and, said first securement member being configured for arrangement in to a second configuration in which the first securement member is moved relatively outwardly away from the side-wall of the tray body once the insert tray has been inserted in to the chamber of the rigid container, and

[0009] wherein, the rigid container includes at least one second securement member protruding inwardly of the chamber from an inner surface of a side-wall of the rigid container, whereby when the at least one first securement member of the insert tray is arranged in the second configuration after being inserted in to the chamber, the at least one first securement member is configured to abut against the at least one second securement member so as to restrict movement of the insert tray in a direction outwardly of the opening of the chamber; and

[0010] wherein a portion of the insert tray is configured for biasing the at least one securement member in to the second configuration from the first configuration.

[0011] Preferably, the insert tray may include a blister pack.

[0012] Preferably, the insert tray may be formed from a single piece of material.

[0013] Preferably, the insert tray may be vacuum-formed from a single piece of material.

[0014] Preferably, the insert tray may be formed from at least one of a plastic material and a metallic material.

[0015] Preferably, the present invention may include a plurality of first securement members extending from side-walls of the tray body

[0016] Preferably, the tray body may include a rectangular-shaped configuration.

[0017] Preferably, the at least one securement member may include a flap extending from the tray body.

[0018] Preferably, the flap may extend from a lower edge of a side-wall of the tray body so as to form a V-shaped cross section with the side-wall of the tray body when the flap is arranged in the second configuration.

[0019] Preferably, the tray body may include a plurality of separate recesses formed therein.

[0020] Preferably, the present invention may include a sealing film configured for removable attachment to the tray so as to removably seal an opening of the recess of the insert tray.

[0021] Preferably, the sealing film may be configured with at least one tear line whereby the sealing film is able to be torn along the tear line so as to unseal the sealing film over an opening of one of the plurality of recesses in the tray body whilst maintaining sealing of other recesses formed in the tray body.

[0022] Preferably, the biasing portion may be integrally formed in the insert tray by the first securement member and the tray body.

[0023] Preferably, the rigid container may be formed from a single piece of material.

[0024] Preferably, the rigid container may be formed from at least one of a rigid plastic material and a rigid metallic material.

[0025] Preferably, the at least one second securement member may include a protrusion that is integrally formed in and protrudes inwardly of the chamber from the inner surface of the side-wall of the container.

[0026] Preferably, the rigid container may include a locking assembly for releasably-locking a lid to the rigid container so that the lid covers an opening of the rigid container, the locking assembly including:

[0027] shaped portions disposed on the lid and container that are configured to allow slidable engagement of the lid relative to the rigid container along a movement axis between a first configuration in which the lid covers the opening in to a second configuration in which the lid does not cover the opening;

[0028] a locking nub protruding from an external surface of a side-wall of the rigid container;

[0029] a nub receiving portion disposed on the lid; and

[0030] wherein when the lid and rigid container are slidably engaged together in the first configuration, the locking nub disposed on the rigid container is received within the nub receiving portion disposed on the lid so as to restrict sliding movement of the lid relative to the rigid container

along the movement axis from the first configuration in to the second configuration, and, wherein the wall of the rigid container is inwardly depressible so as to move the locking nub outwardly of the nub receiving portion whereby the lid is then able to be slidably moved relative to the rigid container along the movement axis from the first configuration in to the second configuration.

[0031] Preferably, the at least one of the shaped portions forms a pair of rails disposed along a rim of the rigid container opening, and at least one of the shaped portions form rail engagement elements disposed on the lid configured for slidable engagement with the rails.

[0032] Preferably, the locking nubs may extend outwardly from opposing elongate side-walls of the rigid container along at least one an axis that is transverse to the movement axis.

[0033] Preferably, the lid may include a main body configured for covering the opening of to rigid container, and side-portions extending perpendicularly from elongate side-edges of the main body.

[0034] Preferably, the side-portions may each include a nub receiving portion for receiving one of the locking nubs when the lid is slidably engaged with the rigid container in the first configuration.

[0035] Preferably, the nub receiving portion may include at least one of a slot, a recess and a rebate.

[0036] Preferably, the present invention may include a locking assembly for releasably-locking a lid to the rigid container so that the lid covers an opening of the rigid container, the locking assembly including:

[0037] shaped portions disposed on the lid and rigid container that are configured to allow slidable engagement of the lid relative to the rigid container along a movement axis between a first configuration in which the lid covers the opening in to a second configuration in which the lid does not cover the opening;

[0038] a locking nub disposed on the lid;

[0039] a nub receiving portion disposed on a wall of the rigid container; and

[0040] wherein when the lid and rigid container are slidably engaged together in the first configuration, the locking nub disposed on the lid is received within the nub receiving portion disposed on the rigid container so as to restrict sliding movement of the lid relative to the rigid container along the movement axis from the first configuration in to the second configuration, and, wherein the wall of the rigid container is inwardly depressible so that the locking nub is moved relatively outwardly of the nub receiving portion and whereby the lid is then able to be slidably moved relative to the rigid container along the movement axis from the first configuration in to the second configuration.

[0041] Preferably, the locking nub may include an arrow-head shaped configuration oriented so that the lid is able to be slid freely into engagement with the rigid container but then to restrict removal of the lid from the rigid container without first squeezing walls of the container to release the lid from the rigid container.

[0042] Preferably, the present invention may include an indicator element extending from the insert tray, said indicator element being configured such that when the insert tray is arranged inside the chamber of the rigid container and the lid is covering the opening of the rigid container, the lid may be configured to apply a force to the indicator element as the lid is moved from the first configuration in to the second configuration so as to break, deform or alter a visual characteristic of the indicator element.

[0043] Preferably, the indicator element may be integrally formed with the insert tray from a single piece of material.

[0044] Preferably, the indicator element may include an indicator flap extending from the tray body of the insert tray.

[0045] Preferably, the indicator flap may include at least one of a relatively narrow portion and a relatively weakened portion that is configured for breakage or deformation in response to force applied by the lid as the lid is moved from the first configuration in to the second configuration.

[0046] Preferably, the at least one of the relatively narrow portion and the relatively weakened portion of the indicator flap may be configured for arrangement against a top surface of the tray body of the insert tray and whereby a shaped portion of the lid may be configured to apply force thereto to effect breakage or deformation as the lid is moved from the first configuration in to the second configuration.

[0047] Preferably, the lid may include a viewing region disposed therein configured for alignment over the at least one of the relatively narrow portion and the relatively weakened portion of the indicator flap when the insert tray is arranged in the chamber of the rigid container and the lid is covering the opening of the rigid container, whereby the at least one of the relatively narrow portion and the relatively weakened portion is visible through the viewing region so as to identify if the at least one of the relatively narrow portion and the relatively weakened portion has been broken or deformed.

[0048] Preferably, the indicator element may include an RFID tag and such that when the insert tray is arranged inside the chamber of the rigid container and the lid is covering the opening of the rigid container, the lid is configured to apply a force to the RFID tag of the indicator element as the lid is moved from the first configuration in to the second configuration so as to enable or disable operation of the RFID tag. Also preferably, the lid may be configured to apply a force to the RFID tag of the indicator element as the lid is moved from the first configuration in to the second configuration so as to disable a first antenna of the RFID tag. Also preferably, the RFID tag may include a second antenna whereby when the first antenna is disabled, the second antenna may be configured for transmitting a signal indicating that the first antenna is disabled and/or for transmitting information encoded in to the RFID tag indicating a nature and/or authenticity of the rigid container or its contents.

[0049] In another broad form, the present invention provides a method for use in producing a portable container, the method including steps of:

[0050] (i) forming an insert tray having a tray body with at least one tray recess formed therein; and

[0051] (ii) forming a rigid container having a chamber disposed therein configured for receiving the insert tray;

[0052] wherein the insert tray includes at least one first securement member extending from the tray body, said first securement member being configured for arrangement in to a first configuration in which the first securement member is moved relatively inwardly towards a side-wall of the tray body as the insert tray is inserted in to the chamber of the rigid container in a direction inwardly of an opening of the chamber, and, said first securement member being configured for arrangement in to a second configuration in which

the first securement member is moved relatively outwardly away from the side-wall of the tray body once the insert tray has been inserted in to the chamber of the rigid container, and

[0053] wherein, the rigid container includes at least one second securement member protruding inwardly of the chamber from an inner surface of a side-wall of the rigid container, whereby when the at least one first securement member of the insert tray is arranged in the second configuration after being inserted in to the chamber, the at least one first securement member is configured to abut against the at least one second securement member so as to restrict movement of the insert tray in a direction outwardly of the opening of the chamber; and

[0054] wherein a portion of the insert tray is configured for biasing the at least one securement member in to the second configuration from the first configuration.

[0055] Preferably, in accordance with this method the insert tray may include a blister pack.

[0056] Preferably, the method may include the insert tray being formed from a single piece of material.

[0057] Preferably, the method may include the insert tray being vacuum-formed from a single piece of material.

[0058] Preferably, the method may include the insert tray being formed from at least one of a plastic material and a metallic material.

[0059] Preferably, the method may include a plurality of first securement members being configured to extend from side-walls of the tray body.

[0060] Preferably, the method may include the tray body being formed in a rectangular shape configuration.

[0061] Preferably, the method may include the at least one securement member being formed as a flap extending from the tray body.

[0062] Preferably, the method may include the flap being configured to extend upwardly from a lower edge of a side-wall of the tray body so as to form a V-shaped cross section with the side-wall of the tray body when the flap is arranged in the second configuration.

[0063] Preferably, the method may include a plurality of separate recesses being formed in the tray body.

[0064] Preferably, the method may include a step of applying a sealing film over an opening of the recess of the insert tray after an item has been received within the recess, so as to provide a removable freshness seal over the opening.

[0065] Preferably, the method may include at least one tear line being formed in the sealing film whereby the sealing film is able to be torn open along the tear line to the opening of one of the plurality of recesses in the tray body whilst maintaining sealing of other recesses formed in the tray body.

[0066] Preferably, the method may include a biasing portion being integrally formed in the insert tray by the first securement member and the tray body.

[0067] Preferably, the method may include the rigid container being formed from a single piece of material.

[0068] Preferably, the method may include the rigid container being formed from at least one of a rigid plastic material and a rigid metallic material.

[0069] Preferably, the method may include the at least one second securement member being integrally formed as a protrusion which protrudes inwardly of the chamber from the inner surface of the side-wall of the rigid container.

[0070] Preferably, the method may include the rigid container being formed with a locking assembly for releasably-locking a lid to the rigid container so that the lid covers an opening of the rigid container, the locking assembly including:

[0071] shaped portions disposed on the lid and container that are configured to allow slidable engagement of the lid relative to the rigid container along a movement axis between a first configuration in which the lid covers the opening in to a second configuration in which the lid does not cover the opening;

[0072] a locking nub protruding from an external surface of a side-wall of the rigid container;

[0073] a nub receiving portion disposed on the lid; and

[0074] wherein when the lid and rigid container are slidably engaged together in the first configuration, the locking nub disposed on the rigid container is received within the nub receiving portion disposed on the lid so as to restrict sliding movement of the lid relative to the rigid container along the movement axis from the first configuration in to the second configuration, and, wherein the wall of the rigid container is inwardly depressible so as to move the locking nub outwardly of the nub receiving portion whereby the lid is then able to be slidably moved relative to the rigid container along the movement axis from the first configuration in to the second configuration.

[0075] Preferably, at least one of the shaped portions may form a pair of rails disposed along a rim of the rigid container opening, and at least one of the shaped portions form rail engagement elements disposed on the lid configured for slidable engagement with the rails.

[0076] Preferably, the locking nubs may extend outwardly from opposing elongate side-walls of the rigid container along at least one an axis that is transverse to the movement axis.

[0077] Preferably, the lid may include a main body configured for covering the opening of the rigid container, and side-portions extending perpendicularly from elongate side-edges of the main body.

[0078] Preferably, the side-portions may each include a nub receiving portion for receiving one of the locking nubs when the lid is slidably engaged with the rigid container in the first configuration.

[0079] Preferably, the nub receiving portion may include at least one of a slot, a recess and a rebate.

[0080] Preferably, the present invention may include a locking assembly for releasably-locking a lid to the rigid container so that the lid covers an opening of the rigid container, the locking assembly including:

[0081] shaped portions disposed on the lid and rigid container that are configured to allow slidable engagement of the lid relative to the rigid container along a movement axis between a first configuration in which the lid covers the opening in to a second configuration in which the lid does not cover the opening;

[0082] a locking nub disposed on the lid;

[0083] a nub receiving portion disposed on a wall of the rigid container; and

[0084] wherein when the lid and rigid container are slidably engaged together in the first configuration, the locking nub disposed on the lid is received within the nub receiving portion disposed on the rigid container so as to restrict sliding movement of the lid relative to the rigid container along the movement axis from the first configuration in to

the second configuration, and, wherein the wall of the rigid container is inwardly depressible so that the locking nub is moved relatively outwardly of the nub receiving portion and whereby the lid is then able to be slidably moved relative to the rigid container along the movement axis from the first configuration in to the second configuration.

[0085] Preferably, the locking nub may include an arrowhead shaped configuration oriented so that the lid is able to be slid freely into engagement with the rigid container but then to restrict removal of the lid from the rigid container without first squeezing walls of the container to release the lid from the rigid container.

[0086] Preferably, the method may include a step of providing an indicator element extending from the insert tray, said indicator element being configured such that when the insert tray is arranged inside the chamber of the rigid container and the lid is covering the opening of the rigid container, the lid is configured to apply a force to the indicator element as the lid is moved from the first configuration in to the second configuration so as to break, deform or alter a visual characteristic of the indicator element.

[0087] Preferably, indicator element may be integrally formed with the insert tray from a single piece of material.

[0088] Preferably, the indicator element may include an indicator flap extending from the tray body of the insert tray.

[0089] Preferably, the indicator flap may include at least one of a relatively narrow portion and a relatively weakened portion that is configured for breakage or deformation in response to force applied by the lid as the lid is moved from the first configuration in to the second configuration.

[0090] Preferably, the at least one of the relatively narrow portion and the relatively weakened portion of the indicator flap may be configured for arrangement against a top surface of the tray body of the insert tray and whereby a shaped portion of the lid is configured to apply force thereto to effect breakage or deformation as the lid is moved from the first configuration in to the second configuration.

[0091] Preferably, the lid may include a viewing region disposed therein configured for alignment over the at least one of the relatively narrow portion and the relatively weakened portion of the indicator flap when the insert tray is arranged in the chamber of the rigid container and the lid is covering the opening of the rigid container, whereby the at least one of the relatively narrow portion and the relatively weakened portion is visible through the viewing region so as to identify if the at least one of the relatively narrow portion and the relatively weakened portion has been broken or deformed.

[0092] Preferably, the indicator element may include an RFID tag and such that when the insert tray is arranged inside the chamber of the rigid container and the lid is covering the opening of the rigid container, the lid is configured to apply a force to the RFID tag of the indicator element as the lid is moved from the first configuration in to the second configuration so as to enable or disable operation of the RFID tag. Also preferably, the lid may be configured to apply a force to the RFID tag of the indicator element as the lid is moved from the first configuration in to the second configuration so as to disable a first antenna of the RFID tag. Also preferably, the RFID tag may include a second antenna whereby when the first antenna is disabled, the second antenna may be configured for transmitting a signal indicating that the first antenna is disabled and/or for transmitting information encoded in to the RFID tag indicating a nature and/or authenticity of the rigid container or its contents.

[0093] In another broad form, the present invention provides an insert tray configured for use in accordance with any one of the preceding broad forms.

BRIEF DESCRIPTION OF THE DRAWINGS

[0094] The present invention will become more fully understood from the following detailed description of a preferred but non-limiting embodiments thereof, described in connection with the accompanying drawings, wherein:

[0095] FIG. **1**A shows a perspective view of one example of a rigid container having an opening covered by a lid for use in accordance with an embodiment of the present invention;

[0096] FIG. **1**B shows a perspective view of the rigid container having an opening partially covered by a lid for use in accordance with the first embodiment of the present invention;

[0097] FIG. **2** shows a side-view of the rigid container having the opening covered by the lid for use in accordance with the first embodiment of the present invention;

[0098] FIG. **3** shows a front-view of the rigid container having the opening covered by the lid for use in accordance with the first embodiment of the present invention;

[0099] FIG. **4** shows a bottom-view of the container having the opening covered by the lid for use in accordance with the first embodiment of the present invention;

[0100] FIGS. **5**A-**5**D shows a perspective view, a side view, a front view and a rear view respectively of another example of the rigid container having an opening covered by a lid for use in accordance with another embodiment of the present invention;

[0101] FIG. **6**A shows a photographic image of an example insert tray in the form of a blister pack (unsealed) secured within a rigid tin container such as shown in FIGS. **1** to **5**D in accordance with embodiments of the present invention;

[0102] FIG. **6**B shows a top view of an example insert tray in the form of a single-recessed blister pack (unsealed) configured for removable insertion and securement within a rigid tin container of FIGS. **1** to **5**D in accordance with embodiments of the present invention;

[0103] FIG. **6**C shows a top view of an example rigid tin container (with lid removed) and a plurality of second securement members protruding inwardly from inner surfaces of side-walls of the rigid tin container;

[0104] FIG. **7**A shows a top view of another example insert tray in the form of a multi-recessed blister pack (unsealed) configured for removable insertion and securement within a rigid tin container of FIGS. **1** to **5**D, and, showing example dimensions of the insert tray body dimensions, in accordance with embodiments of the present invention;

[0105] FIG. **7**B shows a top view of another example insert tray in the form of a multi-recessed blister pack (unsealed) configured for removable insertion and securement within a rigid tin container of FIGS. **1** to **5**D, and, showing example dimensions of dimensions of the plurality of first securement members (i.e. the "flaps" of the blister pack), in accordance with embodiments of the present invention;

[0106] FIG. **8**A shows a front cross-sectional view of the example rigid tin container of FIG. **6**C with the example insert tray of FIG. **6**B when fully into the rigid tin container chamber and whereby the edges of the first securement members are arranged by inherent biasing within the structure of the blister pack to abut against second securement members protruding inwardly of the rigid tin container chamber's side-walls;

[0107] FIGS. **8**B and **8**C shows a front cross-sectional views of a portion of an example rigid container of FIG. **6**C with the example blister pack insert tray removed from the rigid tin container chamber and whereby example dimensions of the protruding second securement members are shown; and

[0108] FIG. **9** shows a flowchart of process steps for producing a container system having a self-securing blister pack of pre-sealed in rolled cannabis cigarettes in accordance with an embodiment of the present invention.

[0109] FIG. **10**A shows a top view of an alternative example of the insert tray removed from the rigid container and which includes a tamper-evident indicator flap integrally formed with and extending from the insert tray;

[0110] FIG. **10**B shows a top view of another alternative example of the insert tray removed from the rigid container and which includes a tamper-evident indicator flap integrally formed with and extending from the insert tray;

[0111] FIG. **11** shows a perspective view of the alternative example of the insert tray of FIG. **10**B removed from the rigid container and whereby the indicator flap is folded about the insert tray with an end portion configured to lie flat upon a top surface of the insert tray;

[0112] FIG. **12**A shows a side cut-away view of the alternative example of the insert tray of FIG. **10**B arranged in a rigid container and with the lid covering the opening of the rigid container;

[0113] FIG. **12**B shows a side cut-away view of the alternative example of the insert tray of FIG. **10**B arranged in a rigid container and with the lid in the process of being slid off the rigid container and abutting against the indicator flap lying against the top surface of the insert tray;

[0114] FIG. **13**A shows a top view of the alternate insert tray of FIG. **11** removed form the rigid container and whereby the indicator flap is unbroken and undeformed;

[0115] FIG. **13**B shows a top view of the alternate insert tray of FIG. **11** removed from the rigid container and whereby the indicator flap is broken and deformed after removal of the lid;

[0116] FIG. **14**A shows a top view of an alternative example of a lid having a viewing region disposed therein in the form of a hole and the relatively narrow strip of the indicator flap being visible through the hole;

[0117] FIG. **14**B shows a perspective view of an alternative example of a lid having a viewing region disposed therein in the form of a hole; and

[0118] FIG. **15** shows a top view of an example indicator element with a circuit layout of an RFID tag shown.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0119] Preferred embodiments of the present invention will now be described herein with reference to FIGS. **1** to **15**. The embodiments comprise a portable container system such as may be used for instance in storing rolled cannabis cigarettes and the like but need not necessarily be restricted to such items. In the embodiments of the present invention to be described, the container system comprises a portable and preferably pocket-sized rigid tin container (**10**A,**10**B, **10**C) and an insert storage tray (**30**) that is configured for insertion in to a chamber of the rigid tin container (**10**A, **10**B,**10**C) with the insert tray (**30**) being configured for self-securement within the rigid tin container upon insertion therein. The rigid tin container (**10**A,**10**B,**10**C) may preferably be formed from tin although any other suitably rigid metal (e.g. aluminum) or plastic material may be utilised.

[0120] In this embodiment the rigid tin container (**10**A, **10**B,**10**C) is first formed from a single metal sheet blank using conventional metal forming processes, techniques and manufacturing equipment for drawing, molding, pressing and/or stamping the metal sheet blank in to the desired shape and dimensions desired of the rigid tin container (**10**A,**10**B, **10**C). This step is represented by block (**40**) in FIG. **9**. In this particular embodiment, the rigid tin container (**10**A,**10**B, **10**C) is rectangular-shaped with a base and longer side-walls (**10**B,**10**C) being approximately 92.0 mm long, shorter side-walls (**10**F,**10**G) being approximately 57.5 mm long, and the height of the rigid tin container (**10**A,**10**B,**10**C) being approximately 12.3 mm. The tolerances of these dimensions may be approximately 0.1 mm. The base and side-walls of the rigid tin container (**10**A,**10**B,**10**C) define a chamber (**10**I) for receiving the blister pack insert tray (**30**) therein. Further, a lid (**20**A, **20**B,**20**C) is provided for removable engagement with the rigid tin container (**10**A,**10**B,**10**C) so as to securely cover the opening of the rigid tin container (**10**A,**10**B,**10**C) and the blister pack insert tray (**30**) stored therein.

[0121] The rigid tin container (**10**A,**10**B,**10**C) further includes a locking assembly comprising shaped portions disposed on the lid (**20**A, **20**B, **20**C) and on the rigid tin container (**10**A, **10**B, **10**C) that are configured to allow slidable engagement of the lid (**20**A, **20**B, **20**C) relative to the rigid tin container (**10**A, **10**B, **10**C) along a movement axis (X) between a first configuration (as shown in FIG. **1**A) in which the lid covers the opening in to a second configuration (as shown in FIG. **1**B) in which the lid does not cover the opening. Shaped portions in the form of a pair of parallel rails (**10**D,**10**E) are disposed along a rim of the rigid tin container opening on the side-walls (**10**B,**10**C) of the rigid tin container (**10**A,**10**B,**10**C). Shaped portions in the form of rail engagement elements (**20**B,**20**C) are also disposed on the lid (**20**A,**20**B,**20**C) and are configured for slidable engagement with the parallel rails (**10**D,**10**E). The lid (**20**A, **20**B,**20**C) includes a main body (**20**A) comprised by a substantially flat rectangular portion (**20**A) that is configured for covering the opening of the rigid tin container, and side-portions (**20**B,**20**C) that extend substantially perpendicularly from elongate side-edges of the main body (**20**A). The locking assembly comprises locking nubs (**10**B',**10**C') protruding outwardly from each of the side-walls (**10**B,**10**C) of the rigid tin container along an axis (Y) which is transverse to the movement axis (X), and, locking nub receiving portions in the form of slots (**20**B'.**20**C') that are cut-out of each of the side-portions (**20**B,**20**C) of the lid. The slots (**20**B'.**20**C') are shaped and dimensioned for snugly receiving their corresponding locking nubs. When the lid (**20**A, **20**B,**20**C) and rigid tin container (**10**A,**10**B,**10**C) are slidably engaged together in the first configuration, the locking nubs (**10**B',**10**C') disposed on the rigid tin container (**10**A, **10**B,**10**C) are received within the corresponding slots (**20**B'.

20C') disposed on the lid (20A,20B,20C) so as to restrict sliding movement of the lid (20A,20B,20C) relative to the rigid tin container along the movement axis (X) from the first configuration in to the second configuration. The side-walls (10B,10C) of the rigid tin container are configured to be inwardly depressible by a user to the extent that this may allow requisite degree of movement of the locking nubs (10B',10C)' outwardly of the slots (20B'.20C') whereby the lid (20A,20B,20C) is then able to be slidably moved relative to the rigid tin container (10A,10B,10C) along the movement axis (X) from the first configuration in to the second configuration. In certain embodiments, the locking nubs may be disposed on the lid whilst the locking nub receiving portions may be disposed on the container in reverse fashion. In certain embodiments the locking assembly may be configured to allow slidable engagement of the lid relative to the rigid container from multiple directions (e.g. as shown in the embodiment of the rigid container depicted in FIGS. 1A-4), whilst in other embodiments, the locking assembly may be configured to allow for slidable engagement of the lid relative to the rigid tin container from only one direction (e.g. as shown in the embodiment of the rigid container depicted in FIGS. 5A-5D) whereby in addition to the side-portions (20B,20C) the lid includes an end-portion (20E) which provides a block against engagement of the lid from one end of the lid. Yet further, in certain embodiments, the locking nubs of the locking assembly may comprise arrow-head shaped configurations which may allow the lid to be relatively easily slid into engagement with the rigid tin container due to the lid being configured to come in to contact first with the tapered end of the arrow-head locking nubs as the lid is slidably engaged with the rigid tin container.

[0122] The insert tray (30) in this embodiment comprises a blister pack (30) that is vacuum-formed from a single piece of plastic material such as polystyrene. This step is represented by block (41) in FIG. 9. In this embodiment, the insert tray (30) comprises a rectangular-shaped tray body having four side-walls (30D) surrounding at least one tray recess (30C) such as is shown in the embodiments of FIGS. 6B and 8A, and preferably, a plurality of tray recesses (30C) therein, such as is shown in the embodiments of FIGS. 7A and 7B. In the preferred embodiment, the plurality of tray recesses (30C) may comprise elongate-shaped recesses configured for receiving typically-sized rolled cannabis cigarettes therein. The insert tray (30) further comprises a plurality of first securement members (30B) in the form of flaps (30B) each are integrally formed with and extend upwardly from the base of each of the side-walls (30D) in substantially V-shaped cross-sectional formations with the respective side-walls (30D). In this embodiment, the rectangular-shaped tray body (30A) of the blister pack (30) comprises longer side-walls of approximately 90.6 mm, shorter side-walls of approximately 56.2 mm, and whereby the corners of the insert tray are rounded with radiuses of approximately 5.0 mm. The flaps (30B) are configured to taper away as they extend away from the bases of the respective side-walls (30D). The lengths of the tapered edges of the flaps (30B) extending away from the shorter side-walls are approximately 33.00 mm long, the tapered edges of the flaps extending away from the bases of the longer side-walls being approximately 74.00 mm long, and the depths of each of the flaps (30B) being approximately 8.8-9.0 mm. Further, the approximate distance from the base of each side-wall to the top of each side-wall of the tray body is approximately 11.5-11.7 mm. The tolerances of these dimensions are approximately 0.1 mm. Further, the sheet of polystyrene which is vacuum-formed to create the blister pack is 0.4 mm in thickness with a tolerance of approximately 0.05 mm.

[0123] After step of forming the blister pack (30) has been completed, the items to be stored are then deposited in to the recesses (30C) of the blister pack (30). This step is represented by block (42) in FIG. 9. In this example, the four rolled cannabis cigarettes are deposited in to the tray recesses (30C) of the blister pack (30) before a single layer of translucent film (not shown) is heat sealed to the blister pack (30) in order form a freshness seal over the openings of each of the tray recesses (30C). This step is represented by block (43) in FIG. 9. The layer of film may include tear lines disposed on its surface so that portions of the sealing film may be selectably removed to permit access to selected recesses of the blister pack (30) without needing to expose all tray recesses (30C) at once. The tear lines may be either pre-formed in to appropriate locations of the film layer before the film is heat-sealed to the blister pack (30C), or, may be applied to the film layer after the film layer has been heat-sealed to the blister pack (30C). The tear lines may further be formed by perforating the surface of the sealing film layer, or, by chemically or mechanically weakening regions of the sealing film layer. Whilst in these embodiments the recesses (30C) of the blister pack (30) are covered by the sealing film layer, this is not necessary and the recesses (30C) may remain unsealed if so desired.

[0124] After the step of sealing the pre-rolled cannabis cigarettes in the blister pack (30) has been performed, the blister pack (30) may then be inserted in to the chamber (10I) of the rigid tin container (10A,10B,10C), either by hand or by machine. This step is represented by block (44) in FIG. 9. During insertion of the blister pack (30) inwardly of the opening in the rigid tin container, the flaps (30B) will be urged relatively inwardly towards the respective side-walls (30D) of the blister pack (30) from which the flaps (30B) extend by virtue of the internal walls of the rigid container abutting against the flaps (30B). Once the blister pack has been fully inserted in to the chamber of the rigid container, the flaps (30B) are inherently biased to rotate outwardly away from the side-walls (30D) from which they extend, due to the material properties of the blister pack (30) and folded arrangement of the flaps (30B) relative to the respective side-walls (30D) of the blister pack (30). This step is represented by block (45) in FIG. 9. When the flaps (30B) are biased outwardly in to this configuration, top edges of the flaps (30B) are configured to abut against second securement members (10H) comprised by protruding portions (10H) of the rigid container side-walls that protrude inwardly of the chamber (10I) from inner surfaces of each of the side-walls of the rigid tin container. This enables the blister pack (30) to self-secure itself within the rigid tin container so that the blister pack (30) is restricted from moving outwardly of the rigid container chamber (10I). In this embodiment, the second securement member protrusions (10H) are formed by pressing/stamping the single metal sheet blank during formation of the rigid tin container so that portions of the side-walls protrude suitable inwardly of the rigid tin container chamber (10I) at a distance of approximately 0.6-0.8 mm.

[0125] In alternate embodiments, the insert tray need not necessarily be formed from polystyrene and need not nec-

essarily take the form of a blister pack, however, it is preferable that the material and structure of the insert tray be suitably robust, air-tight, lightweight, be easy to form into the requisite shape with minimal manufacturing processing steps and complexity, and be able to provide inherent biasing in the structure of the insert tray to allow the insert tray to self-secure itself to the rigid tin container once it has been inserted in to the chamber of the rigid tin container. For instance, the insert tray described in the above embodiment could be formed from a single sheet of metal foil.

[0126] In certain embodiments, the container may further include a humidity control element within the container system. For instance, such a humidity control element may be integrally assembled with lid of the rigid container so as to face inwardly of the rigid container chamber when the lid covers the container and to control or regulate humidity within the container during use.

[0127] Referring now to FIGS. **10**A to **14**B, in certain embodiments, the insert tray (**30**) may include a tamper-evident indicator element (**30**E) extending from it such that when the insert tray (**30**) is arranged inside the chamber of the rigid container (**10**A) and the lid (**20**A) is covering the opening of the rigid container (**10**A), the lid (**20**A) is configured to apply a force to the indicator element (**30**E) as the lid (**20**A) is slid off so as to apply a force or stress (either directly or indirectly) to the indicator element (**30**E) which breaks, deforms or otherwise changes a visual characteristic of the indicator element (**30**E). The breakage or deformation of the indicator element (**30**E) provides a useful visible indication to a user as to whether the lid (**20**A) has been prior removed from the rigid container (**10**A) and that the contents of the rigid container (**10**A) may potentially have been tampered with. In certain embodiments, the indicator element (**30**E) may not necessarily break or deform, but may instead be configured to visually display some change in characteristic such as colour, shape or size by way of example in response to the force being applied to the indicator element (**30**E) by the lid (**20**A). A lip of the lid may be curved about so that it may hook or catch upon the indicator element (**30**E) as the lid (**20**A) is slid off the rigid container (**10**A) so as to break or deform the indicator element (**30**E). In the preferred embodiment, the indicator element (**30**E) includes a flap (**30**E) that extends from a base of a side-wall of the insert tray (**30**) and which is integrally formed with the insert tray (**30**) from a single piece of material. More specifically, in this embodiment the flap (**30**E) is configured to be folded so that it runs upwardly and flat against the side-wall of the insert tray (**30**) and then folded over again with an end portion (**30**F) of the flap (**30**E) lying flat against the sealing film covering the top surface of the insert tray (**30**). The end portion (**30**F) includes a cut-out portion (**30**G) that is shaped and dimensioned so as that it defines a relatively narrow strip (**30**H) of material that is susceptible to breakage or deformation from the force of the lid (**20**A) when it is slid off of the opening of the rigid container (**10**A). In alternate embodiments, instead of providing a cut-out (**30**G) in the flap (**30**E), the flap (**30**E) may instead include a perforated tear line or otherwise weakened portion thereof in some manner so that it is susceptible to breakage or deformation in response to the force of the lid (**20**A) acting upon it. In these preferred embodiments, the lid (**20**A) also includes a viewing region (**20**F) disposed therein which is configured for alignment over the relatively narrow strip (**30**H) of the flap (**30**E) when the insert tray (**30**) is arranged in the chamber of the rigid container (**10**A) and the lid (**20**A) is covering the opening of the rigid container (**10**A), whereby the relatively narrow strip (**30**H) is visible through the viewing region (**20**F) of the lid (**20**A). In this way, a user is able to readily determine by visible inspection through the viewing region (**20**F) if the relatively narrow strip (**30**H) has been broken or been deformed as a result of prior removal of the lid (**20**A). In yet alternate embodiments, the indicator element may not be integrally formed with the insert tray and may for instance be comprised by a stand-alone element that may be mounted on or attached to the insert tray, for instance by way of adhesive attachment.

[0128] In certain embodiments of the present invention, the indicator element may further include an RFID tag formed therein or thereon. When the insert tray is arranged inside the chamber of the rigid container and the lid is covering the opening of the rigid container, the lid is configured to apply a force to the RFID tag of the indicator element as the lid is moved from the first configuration in to the second configuration so as to enable or disable operation of the RFID tag. In these embodiments, the force applied by the lid may break or otherwise disable an antenna of the RFID tag. Consequently, an RFID tag reader configured for reading signals from the RFID tag is no longer able to read any signals from the broken RFID tag in the indicator element and this may serve as an indicator that the container has been tampered with. In other embodiments, instead of disabling functioning of the RFID tag by disabling or breaking the antenna, the force of the lid upon he RFID tag may instead assist in enabling or otherwise activating some function of the RFID tag so that a signal is detectable from the RFID tag by an RFID tag reader where the signal is indicative of the container having been tampered with. The inclusion of the RFID tag in the indicator element of these embodiments may not only assist in providing an additional indicator of tampering, but also, allows information regarding the container and/or its contents to be encoded therein and to be readable by the RFID tag reader. Such encoded information may also assist in confirming authenticity of the container and/or its contents. In certain embodiments, the RFID tag (**50**,**51**,**52**) may include a processor module (**51**) for processing signals received from external devices and for effecting transmission of information stored in a memory module (**51**) of the RFID tag (**50**,**51**,**52**). The RFID tag (**51**,**52**,**53**) also includes a pair of antennas (**50**,**52**). A first antenna (**50**) of the pair of antennas is configured for arrangement along the relatively narrow strip of material of the indicator element (**30**E) as shown in FIG. **15** (or along the relatively weakened region of the indicator element) such that the first antenna (**50**) is configured for breakage or otherwise being disabled when the lid (**20**A) is removed from the rigid container (**10**A). The second antenna (**52**) is configured to remain unbroken when the lid (**20**A) is removed from the rigid container (**10**A) and when the first antenna (**50**) is broken or otherwise disabled, the processor module (**51**) is configured to sense breakage/disablement of the first antenna (**50**) and to transmit a signal via the unbroken second antenna (**52**) indicating that the first antenna (**50**) is broken. In this embodiment, even when the first antenna (**50**) is broken, the RFID tag (**50**,**51**,**52**) is still able to transmit information via the second antenna (**52**) so that the RFID tag (**50**,**51**,**52**) is still functional for communicating to an external RFID tag reader information indicative of the authenticity of the rigid container (**10**A), its

contents or to communicate any other useful information encoded in to the RFID tag (**50**,**51**,**52**) such as the packaging date, source of origin and so on.

[0129] It will be apparent from the above that embodiments of the present invention may assist in providing at least one advantage over existing technologies. For instance, the consumer may be provided with the convenience of purchasing multiple pre-rolled cannabis cigarettes in a single-blister pack which may obviate the need for the consumer to roll the cannabis cigarettes. Furthermore, the sealing film applied to the blister pack provides a freshness seal over the tray recesses so that the multiple pre-rolled cannabis cigarettes may remains fresh for an extended period of time prior to use by the consumer. Yet further, the blister pack containing the pre-rolled cannabis cigarettes may be quickly and easily inserted in to the chamber of the rigid tin container as "replacement cartridges". Yet further, as the flaps are inherently biased to rotated outwardly away from the respective side-walls to which they extend, the blister pack is self-securing within the chamber of the rigid container without requiring needing to manually apply any glues, tapes, latches or other securement means after insertion in to the chamber of the rigid container. Thus, the blister pack may be quickly and easily inserted in to the rigid container and automatically secured therein in a single motion. Yet further, each of the steps involved in forming the container system are relatively simple, process-efficient and minimises the materials and component parts requiring processing, forming and assembly. For instance, both the rigid tin container and the blister pack are formed using existing machinery and processing techniques applied to single metal sheet blanks and polystyrene sheet blanks by simply pressing/stamping, cutting and/or folding the respective materials in to the desired shapes. For instance, the rigid tin container may be entirely formed from a single metal sheet blank without requiring multiple independent parts and materials to be processed and assembled together and whereby the metal blank sheet may be simply pre-stamped by manufacturing machinery so that protrusions are formed in the metal blank sheet which will protrude in to the chamber from inner surfaces of the walls of the rigid tin container after the single metal blank sheet is folded into the rigid tin container shape. These protrusion may form the second securement members which abut against the first securement members (i.e. the flaps) of the blister pack insert tray. Similarly, the locking assembly protrusion extending outwardly from the side-walls of the rigid tin container may be pressed in to shape from the single metal sheet blank during the manufacturing process with relative ease and efficiency. Yet further, both the sealing film layer, and, the lid locking assemblies in certain embodiments may both assist in alleviating the ability of a young child to access the rolled cannabis cigarettes stored within the blister tray. That is, a degree of dexterity is required to unlock the lid and to remove the sealing film layer in order to access the rolled cannabis cigarettes stored therein.

[0130] Those skilled in the art will appreciate that the invention described herein is susceptible to variations and modifications other than those specifically described without departing from the scope of the invention. All such variations and modification which become apparent to persons skilled in the art, should be considered to fall within the spirit and scope of the invention as broadly hereinbefore described. It is to be understood that the invention includes all such variations and modifications. The invention also includes all of the steps and features, referred or indicated in the specification, individually or collectively, and any and all combinations of any two or more of said steps or features.

[0131] The reference to any prior art in this specification is not, and should not be taken as, an acknowledgment or any form of suggestion that that prior art forms part of the common general knowledge.

1. A portable container system including:

an insert tray having a tray body with at least one tray recess formed therein; and

a rigid container having a chamber disposed therein configured for receiving the insert tray;

wherein the insert tray includes at least one first securement member extending from the tray body, said first securement member being configured for arrangement in to a first configuration in which the first securement member is moved relatively inwardly towards a side-wall of the tray body as the insert tray is inserted in to the chamber of the rigid container in a direction inwardly of an opening of the chamber, and, said first securement member being configured for arrangement in to a second configuration in which the first securement member is moved relatively outwardly away from the side-wall of the tray body once the insert tray has been inserted in to the chamber of the rigid container, and

wherein, the rigid container includes at least one second securement member protruding inwardly of the chamber from an inner surface of a side-wall of the rigid container, whereby when the at least one first securement member of the insert tray is arranged in the second configuration after being inserted in to the chamber, the at least one first securement member is configured to abut against the at least one second securement member so as to restrict movement of the insert tray in a direction outwardly of the opening of the chamber; and

wherein a portion of the insert tray is configured for biasing the at least one securement member in to the second configuration from the first configuration.

2. A portable container system as claimed in claim **1**, wherein the insert tray includes a blister pack.

3. A portable container system as claimed in claim **1**, wherein the insert tray is formed from a single piece of material.

4. A portable container system as claimed in claim **1**, wherein the insert tray is vacuum-formed from a single piece of material.

5. A portable container system as claimed in claim **1**, wherein the insert tray is formed from at least one of a plastic material and a metallic material.

6. A portable container system as claimed in claim **1**, including a plurality of first securement members extending from side-walls of the tray body

7. A portable container system as claimed in claim **1**, wherein the tray body includes a rectangular-shaped configuration.

8. A portable container system as claimed in claim **1**, wherein the at least one securement member includes a flap extending from the tray body.

9. A portable container system as claimed in claim **8**, wherein the flap extends from a lower edge of a side-wall of

the tray body so as to form a V-shaped cross section with the side-wall of the tray body when the flap is arranged in the second configuration.

10. A portable container system as claimed in claim **1** wherein the tray body includes a plurality of separate recesses formed therein.

11. A portable container system as claimed in claim **1**, including a sealing film configured for removable attachment to the tray so as to removably seal an opening of the recess of the insert tray.

12. A portable container system as claimed in claim **11**, wherein the sealing film is configured with at least one tear line whereby the sealing film is able to be torn along the tear line so as to unseal the sealing film over an opening of one of the plurality of recesses in the tray body whilst maintaining sealing of other recesses formed in the tray body.

13. A portable container system as claimed in claim **1**, wherein the biasing portion is integrally formed in the insert tray by the first securement member and the tray body.

14. A portable container system as claimed in claim **1**, wherein the rigid container is formed from a single piece of material.

15. A portable container system as claimed in claim **1**, wherein the rigid container is formed from at least one of a rigid plastic material and a rigid metallic material.

16. A portable container system as claimed in claim **1**, wherein the at least one second securement member includes a protrusion that is integrally formed in and protrudes inwardly of the chamber from the inner surface of the side-wall of the container.

17. A portable container system as claimed in claim **1**, wherein the rigid container includes a locking assembly for releasably-locking a lid to the rigid container so that the lid covers an opening of the rigid container, the locking assembly including:

shaped portions disposed on the lid and container that are configured to allow slidable engagement of the lid relative to the rigid container along a movement axis between a first configuration in which the lid covers the opening in to a second configuration in which the lid does not cover the opening;

a locking nub protruding from an external surface of a side-wall of the rigid container;

a nub receiving portion disposed on the lid; and

wherein when the lid and rigid container are slidably engaged together in the first configuration, the locking nub disposed on the rigid container is received within the nub receiving portion disposed on the lid so as to restrict sliding movement of the lid relative to the rigid container along the movement axis from the first configuration in to the second configuration, and, wherein the wall of the rigid container is inwardly depressible so as to move the locking nub outwardly of the nub receiving portion whereby the lid is then able to be slidably moved relative to the rigid container along the movement axis from the first configuration in to the second configuration.

18. A portable container system as claimed in claim **17**, wherein at least one of the shaped portions forms a pair of rails disposed along a rim of the rigid container opening, and at least one of the shaped portions form rail engagement elements disposed on the lid configured for slidable engagement with the rails.

19. A portable container system as claimed in claim **17**, wherein the locking nubs extend outwardly from opposing elongate side-walls of the rigid container along at least one an axis that is transverse to the movement axis.

20. A portable container system as claimed in claim **17**, wherein the lid includes a main body configured for covering the opening of the rigid container, and side-portions extending perpendicularly from elongate side-edges of the main body.

21-67. (canceled)

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