

“Slide-open packet of smoke articles.”**TECHNICAL FIELD**

The present invention relates to a slide-open packet of smoke articles, i.e. with sliding opening.

5 In the description that follows reference will be made, for the sake of brevity, to a slide-open packet of cigarettes without the present invention thereby losing general validity.

BACKGROUND ART

10 Rigid hinged lid packets of cigarettes are currently the packets of cigarettes of the most widespread type on the market because they are simple to make, are easy and practical to use and provide good mechanical protection to the cigarettes they contain.

In addition to the aforementioned rigid hinged-lid packets of cigarettes, rigid slide-open, i.e. with sliding opening, packets of cigarettes have been proposed, comprising two containers, inserted one inside the other in a partly separable manner.

15 In other words, a rigid slide-open packet of cigarettes comprises an inner container which is suitable for receiving a group of cigarettes wrapped in a sheet of metallised wrapping paper and is housed inside an outer container so as to be able to slide with respect to the outer container between a closed configuration, in which the inner container is inserted inside the outer container, and an open configuration in which the inner container is partly outside the outer container. The sliding of the inner container with respect to the outer
20 container can be determined by a translation between the two containers or by a rotation between the two containers about a hinge which connects the two containers.

Some embodiments of rigid packets of cigarettes that are slidable by translation have been disclosed in FR2499947A1, US4534463A1, US5080227A1 and IT1169163B. An embodiment of a rigid packet of cigarettes that is slidable by rotation is disclosed in
25 WO2006021581.

A drawback that has been observed in rigid slide-open packets of cigarettes is that in some situations, typically when a packet of cigarettes is inside a relatively wide bag or pocket, undesired opening of the packet of cigarettes can occur, i.e. sliding of the inner container outside the outer container, with a consequent exit from the inner container of cigarettes
30 and/or tobacco powder.

In rigid packets of cigarette that are slidable by rotation it has been proposed to create a certain interference between the inner container and the outer container when the inner container is in the closed configuration, in such a manner that in order to take the inner

container to the open configuration it is necessary to deform slightly the upper corner of the inner container by applying an opening force that is sufficiently high to be able to determine this deformation. In this manner, the inner container remains in the closed configuration until a relatively high opening force is applied; nevertheless, it has been
5 noted that the deformation to which the upper corner of the inner container is subjected at each opening locally ruins the cardboard constituting the inner container and causes an undesired compression of the cigarettes contained in the inner container (in particular the two cigarettes arranged in contact with the upper corner are “dented”).

Another embodiment of a rigid slide-open packet of cigarettes has been disclosed in
10 EP2716564A1. EP2716564A1 discloses a rigid packet of cigarettes of the type sliding by horizontal translation or by rotation and the corresponding blank. The packet requires the use of both hands to be opened. Also, the packet disclosed there comprises an outer container and an inner box body sliding transversely with respect to the outer container: the outer container comprises an open vertical side and has a partial opening on the side
15 opposite the open vertical side; the packet has a first snap closure provided with locking elements that limit sliding of the inner body; the locking elements are part of the inner box body and protrude from the inner box body into a space between the inner box body and the outer container; a second snap closure limits a possible separation of the inner box body from the outer container and is made by locking elements that protrude from the
20 inner box body that interact with elements that protrude from the outer container. The opening locking and closing locking mechanisms disclosed in document EP2716564A1 are effective but bulky because they involve the use of double folded wings of significant size that cooperate with slots that are also significantly large: locking mechanisms of this type adapt poorly to vertical sliding rigid packets (in particular packets that can be opened with
25 just one hand, by acting on a push window) in which the amount of sliding is contained within a few millimetres and up to a maximum of a centimetre.

DISCLOSURE OF THE INVENTION

The aim of the present invention is to provide a slide-open packet of smoke articles which is free from the drawbacks disclosed above and is in particular easy and cheap to make.

30 According to the present invention, a slide-open packet of smoke articles is provided, as claimed in the appended claims and according to one or more of the following embodiments.

Example 1

Packet of smoke articles comprising:

an inner container, which houses a group of smoke articles;

an outer container, the interior of the outer container slidably houses the inner container so as to enable the inner container to slide with respect to the outer container between a closed configuration, wherein the inner container is inserted inside the outer container, and an open configuration, wherein the inner container is partly extracted from the outer container; and

at least one locking device which comprises a locking element and an engagement portion and locks, in a deactivatable manner by an external action of a user, sliding of the inner container with respect to the outer container when the inner container is in the closed configuration, in which:

the locking element protrudes inwards from a wall integral with the outer container and has a locking edge; and

the engagement portion protrudes outwards from a wall integral with the inner container and has a first engagement edge which faces, in the closed configuration of the inner container, the locking edge of the locking element, and engages the locking edge during the opening movement of the packet, and a second engagement edge which faces, in the open configuration of the inner container, the locking edge of the locking element, and engages the locking edge during the packet closing movement.

Example 2

Packet of smoke articles according to example 1, wherein the engagement portion comprises two overlapping engagement panels which form a raised portion with respect to a rear wall of the inner container.

Example 3

Packet of smoke articles according to example 2, wherein the two engagement panels are connected along a folding line and are glued to each other, wherein the first engagement edge is formed by the folding line and the second engagement edge is formed by the two free edges, opposite the folding line, of the engagement panels.

Example 4

Packet of smoke articles according to example 2, or 3, and comprising a lid, which is hinged to the outer container along a hinge to close an open top end of the outer container, and comprises a top wall and a stiffener panel folded 180° onto the top wall on the side of the internal surface of the lid, wherein the stiffener wall comprises an extension wall

comprising a first panel, glued to the rear wall of the inner container, and a second panel folded 180° onto the first panel and glued to the first panel, wherein the two engagement panels comprises a first engagement panel consisting of the first panel of the extension wall and a second engagement panel consisting of the second panel of the extension wall.

5 Example 5

Packet of smoke articles according to any preceding example, wherein the locking element comprises at least one locking tab hinged to a top edge of a stiffener panel of a rear wall of the outer container glued to an internal surface of the rear wall of the outer container, wherein the locking tab is folded substantially 180° onto an internal surface of the stiffener
10 panel of the rear wall of the outer container when the inner container is in the closed configuration and is substantially aligned with the stiffener panel of the rear wall of the outer container when the inner container is in the open configuration.

Example 6

Packet of smoke articles according to any preceding example, wherein the locking element
15 comprises two locking tabs hinged to opposite sides of a top edge of a stiffener panel of a rear wall of the outer container glued to an internal surface of the rear wall of the outer container, wherein the locking tabs are folded substantially 180° onto an internal surface of the stiffener panel of the rear wall of the outer container when the inner container is in the closed configuration and are substantially aligned with the stiffener panel of the rear wall
20 of the outer container when the inner container is in the open configuration.

Example 7

Packet of smoke articles according to any preceding example, wherein the locking device comprises two abutting portions for abutting on the locking edge, wherein the two abutting portions are respective portions of the rear wall of the inner container and comprise a first
25 abutting portion, bounded below by the first engagement edge of the engagement portion when the inner container is in the closed configuration, and a second abutting portion, bounded above by the second engagement edge of the engagement portion when the inner container is in the open configuration.

Example 8

30 Packet of smoke articles according to any preceding example, wherein the locking element and the engagement portion are configured in such a manner that the interaction between the locking edge and the first engagement edge, and/or the interaction between the locking edge and the second engagement edge, produces a sound.

Example 9

Packet of smoke articles according to any preceding example, wherein the locking element is concealed by the outer container in the closed configuration and in the open configuration of the inner container.

Example 10

Packet of smoke articles according to any one of examples 4 to 9, wherein the packet comprises at least one slot integral with a rear wall of the inner container and the lid comprises at least one engaging tab protruding towards the inside of the packet, wherein in the closed configuration of the inner container the at least one engaging tab is disengaged from the at least one slot and in the open configuration of the inner container the at least one engaging tab is engaged in the at least one slot to lock, in a deactivatable manner by an external action of a user, the inner container in the open configuration, and wherein the interaction between the at least one slot and the at least one tab produces a sound when the open configuration of the inner container is reached.

Example 11

Packet of smoke articles according to example 10, wherein in the open configuration of the inner container a free edge of the at least one engaging tab is received in the at least one slot and abuts on a top edge of the slot.

Example 12

Packet of smoke articles according to example 10, or 11, wherein the at least one slot is obtained on the extension wall of the stiffener panel of the top wall of the lid.

Example 13

Packet of smoke articles according to any one of examples 10 to 12, wherein the at least one slot is obtained on the first and second panel of the extension wall of the stiffener panel of the top wall of the lid and the rear wall of the inner container acts as a bottom wall for the at least one slot.

Example 14

Packet of smoke articles according to any one of examples 10 to 13, wherein the at least one slot comprises a bottom edge defined by the first engagement edge.

Example 15

Packet of smoke articles according to any one of examples 10 to 14, wherein the at least one engaging tab is hinged with respect to a top wall of the lid along a hinge line, wherein the hinge line of the at least one engaging tab is positioned near the hinge of the lid and

extends substantially parallel to the hinge of the lid.

Example 16

Packet of smoke articles according to any one of examples 12 to 15, wherein the at least one engaging tab is hinged to and obtained on the stiffener panel of the top wall of the lid.

5 Example 17

Packet of smoke articles according to any one of examples 10 to 16, wherein two slots are provided that are integral with a rear wall of the inner container and wherein the lid comprises two engaging tabs projecting inside the packet, wherein in the closed configuration of the inner container each engaging tab is disengaged from the respective slot and in the open configuration of the inner container each engaging tab is engaged with the respective slot to lock, in a deactivatable manner by an external action of a user, the inner container in the open configuration, and wherein the interaction between each slot and the respective tab produces a sound when the open configuration of the inner container is reached.

15 Example 18

Packet of smoke articles according to example 17, wherein the two slots are positioned near respective longitudinal edges of the rear wall of the inner container, and wherein the two engaging tabs are hinged on opposite sides of a top wall of the lid along respective hinge lines that are aligned to one another.

20 Example 19

Packet of smoke articles according to any one of examples 4 to 18, and comprising a connecting tab, which connects the lid to the inner container to control automatically the rotation of the lid by sliding of the inner container with respect to the outer container.

Example 20

25 Packet of smoke articles according to any preceding example, wherein the outer container comprises at least one through window that leaves exposed an underlying part of the inner container to allow a user to slide the inner container with respect to the outer container.

Example 21

30 Packet of smoke articles according to example 20, wherein the through window of the outer container is obtained on a front wall of the outer container, or on a bottom wall of the outer container.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will now be disclosed with reference to the accompanying drawings,

which illustrate some exemplary and non-limiting embodiments thereof, in which:

- Figure 1 is a front lateral perspective view and in a closed configuration of a slide-open packet of cigarettes made in accordance with to the present invention;

- Figure 2 is a front lateral perspective view and in an open configuration of the packet of cigarettes of Figure 1;

- Figure 3 is a rear lateral perspective view of the packet of cigarettes of Figure 1 in a closed configuration;

- Figures 4 to 6 are cross sections of the packet of cigarettes of Figure 1 in different configurations of the inner container with respect to the outer container;

- Figures 7 to 9 are enlarged details of Figures 4 to 6;

- Figure 10 is a front perspective view of the packet of cigarettes of Figure 1 in a closed configuration and devoid of certain elements to better show others;

- Figure 11 is a front lateral perspective view of the packet of cigarettes of Figure 1 in an open configuration and devoid of certain elements to better show others;

- Figure 12 is a view of a blank used to make an outer container of the packet of cigarettes of Figure 1;

- Figure 13 is a view of a blank used to make a stiffener panel of the outer container of the packet of cigarettes of Figure 1;

- Figure 14 is a view of a blank used to make an inner container of the packet of cigarettes of Figure 1;

- Figure 15 is a front lateral perspective view and in a closed configuration of a version of the packet of cigarettes of Figure 1;

- Figure 16 is a front lateral perspective view and in an open configuration of the packet of cigarettes of Figure 15;

- Figure 17 is a rear lateral perspective view of the packet of cigarettes of Figure 15 in a closed configuration;

- Figures 18 to 20 are cross sections of the packet of cigarettes of Figure 15 in different configurations of the inner container with respect to the outer container;

- Figure 21 is a front perspective view of the packet of cigarettes of Figure 15 in a closed configuration and devoid of certain elements to better show others;

- Figure 22 is an enlarged detail of Figure 21;

- Figure 23 is a rear lateral perspective view of the packet of cigarettes of Figure 15 in an open configuration and devoid of certain elements to better show others;

- Figure 24 is a view of a blank used to make an outer container of the packet of cigarettes of Figure 15; and
- Figure 25 is a view of a blank used to make an inner container of the packet of cigarettes of Figure 15.

5 PREFERRED EMBODIMENTS OF THE INVENTION

In this description, similar elements in common to the illustrated embodiments are shown with the same reference numbers.

In Figures 1 to 3, reference number 1 denotes a slide-open packet of cigarettes in its entirety, i.e. with sliding opening by translation (linear movement), which extends along a
10 prevalent extension longitudinal axis A.

In particular, the packet 1 of cigarettes has a “vertical” type sliding opening, i.e. opening occurs parallel to the prevalent extension longitudinal axis A of the packet 1.

The packet 1 of cigarettes illustrated in Figures 1 to 3 comprises a wrapped group 2 of cigarettes (schematically shown in Figure 2), i.e. a group of cigarettes wrapped in a sheet
15 of metallised wrapping paper.

The packet 1 of cigarettes further comprises an inner container 3 (Figure 2) of rigid type, inside which the wrapped group 2 is directly placed, and an outer container 4 of rigid type, which slidably houses the inner container 3 to allow the inner container 3 to slide with respect to the outer container 4 with a translation movement between a closed
20 configuration (illustrated in Figures 1, 3, 4 and 10), wherein the inner container 3 is completely inserted inside the outer container 4, and an open configuration (illustrated in Figures 2, 6 and 11), wherein the inner container 3 is partly outside the outer container 4 so as to make possible access to the wrapped group of cigarettes 2 to extract the cigarettes.

According to what has been illustrated in Figure 2 and in Figures 4 to 6, the inner container
25 3 is of parallelepiped shape, is cup-shaped and has an open top end 5.

The inner container 3 further has a bottom wall 6 opposite the open top end 5, a front wall 7 and a rear wall 8 that are parallel and opposite one another, and a first lateral wall 9A and a second lateral wall 9B that are parallel to one another and interposed between the walls 7 and 8.

Between the walls 7 and 8 and the walls 9A and 9B four longitudinal edges are defined
30 whereas between the walls 7, 8, 9A, 9B and the bottom wall 6 four transversal edges are defined.

In the embodiment illustrated in the attached Figures, all the longitudinal edges are

rectilinear; according to alternative embodiments, which are not illustrated, some longitudinal edges could be bevelled or rounded.

Also the outer container 4 (illustrated in Figures 1 to 6) is cup-shaped, and has a bottom wall 10 opposite an open top end 11, a front wall 12 and a rear wall 13 that are parallel and opposite to one another, and a first lateral wall 14A and a second lateral wall 14B that are parallel to one another and interposed between the walls 12 and 13. Between the walls 12 and 13 and the lateral walls 14A and 14B four longitudinal edges are defined whereas between the walls 12, 13, 14A, 14B and the bottom wall 10 four transversal edges are defined.

In the embodiment illustrated in the attached Figures, all the longitudinal edges are rectilinear; according to alternative embodiments, which are not illustrated, some longitudinal edges could be bevelled or rounded.

According to what is illustrated in Figures 1, 2 and in 4 to 6, the front wall 12 of the outer container 4 has a through window 15 through which the underlying front wall 7 of the container 3 facing the front wall 12 of the outer container 4 is accessible to allow applying a push to the inner container 3 in order to move the inner container 3 between the closed configuration and the open configuration. In other words, through the through window 15 a user can apply a push to the inner container 3 in order to make the inner container 3 to slide with respect to the outer container 4 between the closed configuration and the open configuration.

According to one embodiment that is not illustrated, the through window 15 is obtained on the bottom wall 10 of the outer container 4.

The outer container 4 further comprises a lid 16, which is hinged to the outer container 4 along a hinge 17 to close the open end 11 of the outer container 4 (Figures 1 to 6, 10 and 11).

The lid 16 comprises a top wall 18 and a stiffener panel 19 folded 180° onto the top wall 18 of the lid 16 on the side of the internal surface of the lid 16, i.e. towards the inside of the packet 1. In particular, the stiffener panel 19 is glued to the internal surface of the top wall 18 of the lid 16 (Figure 11).

The lid 16 further includes an extension wall 20 of the stiffener panel 19 of the top wall 18 (Figure 11). The extension wall 20 of the stiffener panel 19 comprises a first panel 21, glued to the rear wall 8 of the inner container 3, and a second panel 22 folded 180° onto the first panel 21 and glued to the first panel 21.

Also, the lid 16 is provided with a pair of engaging tabs 23 (illustrated in Figures 4 to 6, 10 and 11) projecting inside the packet 1, the function of which will be disclosed below.

The engaging tabs 23 have a substantially trapezoidal shape and are hinged with respect to the top wall 18 of the lid 16. In particular, the two engaging tabs 23 are obtained on, and hinged along respective hinge lines to, the stiffener panel 19 of the top wall 18 of the lid 16. The engaging tabs 23 are positioned at opposite ends of the stiffener panel 19 and the hinge lines, aligned to one another, extend substantially parallel to the hinge 17 of the lid 16.

Also, starting from the respective hinge lines, the engaging tabs 23 extend at an angle with respect to the stiffener panel 19 towards the inside of the packet 1 (Figure 4).

In this manner, during rotation of the lid 16, the engaging tabs 23 projects towards the inside of the packet 1 in order to interact each with a respective slot 24, which is integral with the rear wall 8 of the inner container 3.

The two slots 24 are positioned near respective longitudinal edges of the rear wall 8 of the inner container 3 and extend transversally to the prevalent extension axis A of the packet 1. In particular, the two slots 24 have a substantially rectangular shape, extend towards the inside of the packet 1 of cigarettes, and each comprises a top edge 25 arranged for interacting with a respective free edge 26 of a respective tab 23.

Each slot 24 is obtained on the first panel 21 and on the second panel 22 of the extension wall 20, the rear wall 8 of the inner container 3 acting as a bottom wall for the slots 24. Also, each slot 24 forms a depression at the rear wall 8 of the inner container 3, this depression having a depth that is the same as the sum of the thicknesses of the first panel 21 and of the second panel 22.

When the inner container 3 is in the closed configuration, illustrated in Figures 4 and 10, the engaging tabs 23 do not interact with the respective slots 24. In particular, in the closed configuration of the inner container 3 the engaging tabs 23 are disengaged from the slots 24 and lie in a rest position at an angle towards the inside of the packet 1.

By moving the inner container 3 from the closed configuration to the open configuration (Figures 4 to 6), the engaging tabs 23 take a substantially vertical position (Figure 5), i.e. they are substantially aligned with the stiffener panel 19, until interacting, through the free edges 26, with a top edge of the second panel 22, producing a slight sound (Figure 6).

In the open configuration of the inner container 3, illustrated in Figure 6, the engaging tabs 23 are engaged in the respective slots 24, i.e. they are positioned inside the depressions

formed by the slots 24. In other words, in the open configuration of the inner container 3 the free edges 26 of the engaging tabs 23 are received in the respective slots 24 and each abuts on a respective top edge 25 of the slots. In this manner, the inner container 3 is locked, in a deactivatable manner by an external action of a user, in the open configuration.

5 In fact, in use, it is sufficient to exert a downward push on the inner container 3 to unlock the inner container 3 from the open configuration. During movement of the inner container 3, the interaction between the free edges 26 of the engaging tabs 23 with the respective top edges 25 of the slots 24 produces a sound when the open configuration of the inner container 3 is reached.

10 Similarly, when the inner container 3 is moved from the open configuration to the closed configuration, the engaging tabs 23 exit from the depressions formed by the slots 24 and interact, through the free edges 26, with the respective top edges 25 of the slots 24 to produce a further sound. This further sound can be the same as or different from the sound produced during opening of the packet 1.

15 The packet 1 further comprises a connecting tab 28, which connects the lid 16 to the inner container 3 to drive automatically the rotation of the lid 16 by sliding of the inner container 3 with respect to the outer container 4 (Figures 4 to 6).

In other words, the mechanical constrain that the connecting tab 28 makes between the lid 16 and the inner container 3 allows controlling the rotation of the lid 16 automatically, i.e. without the user needing to touch the lid 16, by means of the sliding of the inner container 3 with respect to the outer container 4. In this way, the user must only apply the push needed to make the inner container 3 to slide with respect to the outer container 4 without the need to touch the lid 16.

25 The connecting tab 28 consists of a third panel 29 of the extension wall 20 of the stiffener panel 19 of the top wall 18 of the lid 16.

The third panel 29, having a substantially isosceles trapezoid shape, comprises one end (minor base) hinged to the stiffener panel 19 of the top wall 18 of the lid 16 and another end (major base) hinged to a top edge of the first panel 21.

30 According to another embodiment that is not illustrated, only one engaging tab and one slot are provided that interact with one another to produce a sound when the open configuration of the inner container is reached and to lock, in a deactivatable manner by an external action of a user, the inner container in the open configuration.

The packet 1 of cigarettes further comprises a locking device 30 (illustrated in Figures 4 to

11), to lock, in a deactivatable manner by an external action of a user, the sliding of the inner container 3 with respect to the outer container 4 when the inner container 3 is in the closed configuration. In other words, the locking device 30 maintains the inner container 3 in the closed configuration to lock, i.e. to prevent, reciprocal sliding between the two containers 3 and 4; this locking of reciprocal sliding between the two containers 3 and 4 exerted by the locking device 30 is deactivatable by an outer action of the user when the latter wishes to open the packet 1 of cigarettes, i.e. when the user wishes to slide the inner container 3 with respect to the outer container 4 to move the inner container 3 in the open configuration.

The locking device 30 comprises a locking element 31, which protrudes inwards from the outer container 4 and comprises a locking edge 32, and an engagement portion 33, which protrudes outwards from the inner container 3 and has a first engagement edge 34 which faces, in the closed configuration of the inner container 3, the locking edge 32 of the locking element 31, and engages the locking edge 32 during the opening movement of the packet 1 of cigarettes, and a second engagement edge 35 which faces, in the open configuration of the inner container 3, the locking edge 32 of the locking element 31, and engages the locking edge 32 during the closing movement of the packet 1 of cigarettes.

The locking element 31 comprises two locking tabs 36, having a substantially isosceles trapezoid shape, hinged on opposite side of a top edge of a stiffener panel 37 of the rear wall 13 of the outer container 4, which stiffener panel 37 has an outer surface glued to an inner surface of the rear wall 13 of the outer container 4.

More precisely, the locking tabs 36 are positioned at opposite ends of the stiffener panel 37 of the rear wall 13 of the outer container 4 and have respective hinge lines that are aligned to one another and extend substantially parallel to the hinge 17 of the lid 16.

In use, the locking tabs 36 are folded substantially 180° onto an internal surface of the stiffener panel 37 of the rear wall 13 of the outer container 4 when the inner container 3 is in the closed configuration (Figures 4, 7 and 10) and are substantially aligned with the stiffener panel 37 of the rear wall 13 of the outer container 4 when the inner container 3 is in the open configuration (Figures 6, 9 and 11).

Also, between the two locking tabs 36, the top edge of the stiffener panel 37 defines a portion 38, having a substantially isosceles trapezoid shape, having a height, measured parallel to the prevalent extension longitudinal axis A starting from the hinge lines of the locking tabs 36, that is much greater than the height of the locking tabs 36.

The aforesaid engagement portion 33 comprises a first engagement panel 21 consisting of the first panel of the extension wall 20 of the lid 16, and a second engagement panel 22 consisting of the second panel of the extension wall 20 of the lid 16.

In this manner, the engagement portion 33 is defined by two overlapping engagement panels 21, 22 that form a raised portion with respect to the rear wall 8 of the inner container 3.

In particular, the first engagement panel 21 and the second engagement panel 22, which are glued together, are connected along a folding line 39, which defines the second engagement edge 35 of the engagement portion 33, whereas the first engagement edge 34 of the engagement portion 33 is formed by the two free edges, opposite the folding line 39, of the first and second engagement panel 21, 22.

More precisely, these free edges define a bottom edge 40 of the slots 24, opposite the top edge 25 (Figure 10). It should be noted that the first engagement edge 34 and the second engagement edge 35 are substantially parallel to one another.

The locking device 30 further comprises two abutting portions 41, 42 for abutting on the locking edge 32.

The two abutting portions 41, 42 are formed by respective portions of the rear wall 8 of the inner container 3 and comprise a first abutting portion 41, bounded below by the first engagement edge 34 of the engagement portion 33 when the inner container 3 is in the closed configuration, and a second abutting portion 42, bounded above by the second engagement edge 35 of the engagement portion 33 when the inner container 3 is in the open configuration.

When the inner container 3 is in the closed configuration (Figures 4 and 7), the locking edges 32 of the locking tabs 36 face the first engagement edge 34 of the engagement portion 33.

Further, in the closed configuration of the inner container 3, the locking tabs 36 are folded substantially 180° onto the internal surface of the stiffener panel 37 of the rear wall 13 of the outer container 4, are received in, and engage, the respective slots 24 and are at an angle towards the inside of the packet 1 of cigarettes. In the closed configuration, owing to the spring back of the cardboard that forms the locking tabs 36, the respective locking edges 32 of the locking tabs 36 abut on the first abutting portion 41 of the rear wall 8 of the inner container 3.

By moving the inner container 3 from the closed configuration to the open configuration

(Figures 4, 5, 7 and 8), the locking tabs 36 abut with the respective locking edges 32 on the first engagement edge 34, formed, as previously described, by the two free edges, opposite the folding line 39, of the first and second engagement panel 21, 22, i.e. by the lower edge 40 of the slots 24. In this manner, the inner container 3 is locked, in a deactivatable manner by an external action of a user, in the closed configuration. In use, by exerting on the inner container 3 a sufficiently high opening force, it is possible to unlock the inner container 3 from the closed configuration. In fact, applying a sufficiently high opening force through the through window 15 makes the first engagement edge 34 rotate the locking edges 32 of the locking tabs 36 around the respective hinge lines until the locking tabs 36 take a substantially vertical position (Figures 5 and 8) in which they are interposed between an external surface of the second engagement panel 22 and an internal surface of the rear wall 13 of the outer container 4 and are substantially aligned with the stiffener panel 37 of the rear wall 13 of the outer container 4.

By continuing to move the inner container 3 from the closed configuration to the open configuration, the respective locking edges 32 of the locking tabs 36 abut on and slide (owing to the spring back that tilts the locking tabs 36 towards the inside of the packet 1 of cigarettes) along the external surface of the second engagement panel 22 until they interact with the second engagement edge 35 formed by the folding line 39.

In the open configuration of the inner container 3, illustrated in Figures 6 and 9, the locking edges 32 of the locking tabs 36 face the second engagement edge 35 of the engagement portion 33. In the open configuration of the inner container 3, the locking tabs 36 are substantially aligned with the stiffener panel 37 of the rear wall 13 of the outer container 4 and are tilted towards the inside of the packet 1 of cigarettes. In the open configuration, owing to the spring back of the cardboard that forms the locking tabs 36, the respective locking edges 32 of the locking tabs 36 abut on the second abutting portion 42 of the rear wall 8 of the inner container 3.

By moving the inner container 3 from the open configuration to the closed configuration, the locking edges 32 of the locking tabs 36 abut on the second engagement edge 35, this generating a slight force that opposes the closure of the packet 1 of cigarettes. Applying a sufficiently high closing force through the through window 15 makes the second engagement edge 35 rotate the locking edges 32 of the locking tabs 36 around the respective hinge lines until the locking tabs 36 are folded substantially 180° onto the internal surface of the stiffener panel 37 of the rear wall 13 of the outer container 4.

By continuing the movement from the open configuration to the closed configuration of the inner container 3, the locking tabs 36 are substantially folded 180° onto the internal surface of the stiffener panel 37 of the rear wall 13 of the outer container 4 and are interposed between the internal surface of the stiffener panel 37 and the external surface of the second engagement panel 22.

When the closed configuration of the inner container 3 is reached, the locking tabs 36 return to the initial position.

It should be noted that the interaction between the first engagement edge 34 and the locking edges 32 and/or the interaction between the second engagement edge 35 and the locking edges 32 produces a slight sound that is audible from the user.

Also, it should be noted that the locking tabs 36 are hidden by the outer container 4 in the closed configuration and in the open configuration of the inner container 3.

According to another embodiment that is not illustrated, the locking element comprises only one locking tab hinged to the top edge of the stiffener panel of the rear wall of the outer container. According to this embodiment, the locking tab is folded substantially 180° onto the internal surface of the stiffener panel of the rear wall of the outer container when the inner container is in the closed configuration and is substantially aligned with the stiffener panel of the rear wall of the outer container when the inner container is in the open configuration.

The outer container 4 is made by folding a blank 43, illustrated in Figure 12. The blank 43 consists of cardboard or thin cardboard, i.e. of rigid wrapping material that has to be previously weakened at the folding lines. According to what has been illustrated in Figure 12, the blank 43 comprises a plurality of elements that have been labelled, where possible, with accented reference numbers that are the same as the reference numbers that distinguish the corresponding elements of the outer container 4.

Similarly, the stiffener panel 37 of the rear wall 13 of the outer container 4 is made from a blank 44, illustrated in Figure 13. The blank 44 consists of cardboard or thin card, i.e. of rigid wrapping material that has to be previously weakened at the folding lines. According to what has been illustrated in Figure 13, the blank 44 comprises a plurality of elements that have been labelled, where possible, with accented reference numbers that are the same as the reference numbers that distinguish the corresponding elements of the stiffener panel 37.

Also the inner container 3 is made by folding a blank 45, illustrated in Figure 14. The

blank 45 consists of cardboard or thin cardboard, i.e. of rigid wrapping material that has to be previously weakened at the folding lines. According to what has been illustrated in Figure 14, the blank 45 comprises a plurality of elements that have been labelled, where possible, with accented reference numbers that are the same as the reference numbers that distinguish the corresponding elements of the inner container 3.

With reference to Figures 15 to 23 a different embodiment is shown of the packet 1 of cigarettes according to the invention.

In the packet 1 of cigarettes illustrated in Figures 15 to 23, the engagement portion 33, having a substantially rectangular shape, is defined by two overlapping engagement panels 51, 52 (Figures 22 and 23) that form a raised portion with respect to an inner lateral wall 9a of the inner container 3 (Figure 23).

In particular, in this embodiment, the first engagement panel 51 and the second engagement panel 52, which are glued together, are connected along a folding line 39, which defines the first engagement edge 34 of the engagement portion 33, whereas the second engagement edge 35 of the engagement portion 33 is formed by the two free edges, opposite the folding line 39, of the first and second engagement panel 51, 52.

According to the embodiment illustrated in Figures 15 to 23, the first engagement edge 34 and the second engagement edge 35 are parallel to one another and substantially perpendicular to the hinge 17 of the lid 16.

In this embodiment, the first engagement panel 51 and the second engagement panel 52 are obtained on an outer lateral wall 9aa of the inner container 3, which is intended to be glued to the inner lateral wall 9a of the inner container 3 to form the lateral wall 9A.

In particular, the first engagement panel 51 consists of a first portion 51' (Figure 25), having a substantially rectangular shape, of the outer lateral wall 9aa of the inner container 3 nearer the open top end 5 of the inner container 3, whereas the second engagement panel 52 consists of a second portion 52' (Figure 25) of the outer lateral wall 9aa of the inner container 3, which has an identical shape to that of the first portion 51' and is adjacent to the latter.

More precisely, the second portion 52' is folded 180° onto an external surface of the first portion 51' along the folding line 39 and is glued to the external surface of the first portion 51'.

In the packet 1 of cigarettes illustrated in Figures 15 to 23, the locking element 31 comprises a locking tab 36 hinged to an inner lateral wall 14A' of the outer container 4.

In particular, the locking tab 36 is defined by a cutting line 46, which is substantially "L"-shaped and made on an inner lateral wall 14a of the outer container 4, and is folded substantially 180° onto an internal surface of the inner lateral wall 14a when the inner container 3 is in the closed configuration and is substantially aligned with the inner lateral wall 14a when the inner container 3 is in the open configuration.

Also in the packet 1 of cigarettes illustrated in Figures 15 to 23 the locking device 30 comprises two abutting portions 41, 42 for abutting on the engagement edge 32.

In this embodiment, the two abutting portions 41, 42 are positioned on opposite sides of the engagement portion 33, are respective portions of the inner lateral wall 9a of the inner container 3, and comprise a first abutting portion 41 and a second abutting portion 42.

In particular, the first abutting portion 41 is bounded above by an edge of the open top end 5 of the inner container 3 and below by the first engagement edge 34 of the engagement portion 33 (i.e. by the folding line 39), whereas the second engagement portion 42 is defined by a slot 47 obtained on the outer side wall 9aa of the inner container 3.

The slot 47 is bounded above by a top edge consisting of the free edge of the first engagement panel 51, below by a bottom edge 48 parallel to the free edge of the first engagement panel 51, and has a bottom wall formed by a portion of the inner lateral wall 9a facing the slot 47.

Also, in the packet 1 of cigarettes illustrated in Figures 15 to 23, each slot 24 is obtained on the second panel 22 of the extension wall 20, the first panel 21 acting as a bottom wall for the slots 24. Also, in this embodiment, each slot 24 forms a depression at the rear wall 8 of the inner container 3, this depression having a depth that is equal to the thickness of the second panel 22.

When the inner container 3 is in the closed configuration (Figures 18, 21 and 22), the locking edge 32 of the locking tab 36 faces the first engagement edge 34 of the engagement portion 33, i.e. towards the folding line 39.

Further, in the closed configuration of the inner container 3, the locking tab 36 is folded substantially 180° onto the inner surface of the inner lateral wall 14a of the outer container 4 and is at an angle towards the inside of the packet 1 of cigarettes. In the closed configuration, owing to the spring back of the cardboard that forms the locking tabs 36, the locking edge 32 of the locking tab 36 abuts on the first abutting portion 41 obtained on the inner lateral wall 9a of the inner container 3.

By moving the inner container 3 from the closed configuration to the open configuration

(Figures 18, 19, 21 and 22), the locking tab 36 abuts with the locking edge 32 on the first engagement edge 34, formed, as previously disclosed, by the folding line 39. In this manner, the inner container 3 is locked, in a deactivatable manner by an external action of a user, in the closed configuration. In use, by exerting on the inner container 3 a sufficiently high opening force, it is possible to unlock the inner container 3 from the closed configuration. In fact, applying a sufficiently high opening force through the through window 15 makes the first engagement edge 34 rotate the locking edge 32 of the locking tab 36 around the respective hinge line until the locking tab 36 takes substantially a vertical position in which it is interposed between an external surface of the second engagement panel 52 and an internal surface of an outer lateral wall 14aa of the outer container 4 and is substantially aligned with the inner lateral wall 14a of the outer container 4.

By continuing the movement of the inner container 3 from the closed configuration to the open configuration, the locking edge 32 of the locking tab 36 abuts on and slides (owing to the spring back that tilts the locking tabs 36 towards the inside of the packet 1 of cigarettes) along the external surface of the second engagement panel 52 until it interacts with the second engagement edge 35 formed, as previously described, by the two free edges, opposite the folding line 39, of the first and second engagement panel 51, 52.

In the open configuration of the inner container 3, illustrated in Figures 20 and 23, the locking edge 32 of the locking tab 36 faces the second engagement edge 35 of the engagement portion 33 and is at a certain distance from the latter. In the open configuration of the inner container 3, the locking tab 36 is substantially aligned with the inner lateral wall 14a of the outer container 4 and is at an angle towards the inside of the packet 1 of cigarettes. In the open configuration, owing to the spring back of the cardboard that forms the locking tab 36, the locking edge 32 of the locking tab 36 abuts on an external surface of the outer lateral wall 9aa of the inner container 3.

By moving the inner container 3 from the open configuration to the closed configuration, the locking edge 32 of the locking tab 36 abuts in sequence on the external surface of the outer lateral wall 9aa of the inner container 3, and the second abutting portion 42, until it engages with the second engagement edge 35, this generating a slight force that opposes the closure of the packet 1 of cigarettes. Applying a sufficiently high closure force through the through window 15, makes the second engagement edge 35 rotate the locking edge 32 of the locking tab 36 around the respective hinge line until the locking tab 36 is folded

substantially 180° onto the internal surface of the inner lateral wall 14a of the outer container 4.

By continuing the movement from the open configuration to the closed configuration of the inner container 3, the locking tab 36 is folded substantially 180° onto the internal surface of the inner lateral wall 14a of the outer container 4 and is interposed between the inner surface of the inner lateral wall 14a of the outer container 4 and the external surface of the second engagement panel 52.

When the closed configuration of the inner container 3 is reached, the locking tab 36 returns to the initial position.

It should be noted that the interaction between the first engagement edge 34 and the locking edge 32 and/or the interaction between the second engagement edge 35 and the locking edge 32 produces a slight sound that is audible from the user.

Also, it should be noted that the locking tab 36 is hidden by the outer container 4, in particular by the outer lateral wall 14aa, in the closed configuration and in the open configuration of the inner container 3.

According to another embodiment that is not illustrated, the packet 1 of cigarettes illustrated in Figures 15 to 23 comprises two locking devices arranged on opposite sides of the packet 1 of cigarettes with respect to a median plane of the packet 1.

The outer container 4 of the packet 1 of cigarettes illustrated in Figures 15 to 23 is made by folding a blank 49, illustrated in Figure 24. The blank 49 consists of cardboard or thin cardboard, i.e. of rigid wrapping material that has to be previously weakened at the folding lines. According to what has been illustrated in Figure 24, the blank 49 comprises a plurality of elements that have been labelled, where possible, with accented reference numbers that are the same as the reference numbers that distinguish the corresponding elements of the outer container 4.

Similarly, the inner container 3 of the packet 1 of cigarettes illustrated in Figures 15 to 23 is made by folding a blank 50, illustrated in Figure 25. The blank 50 consists of cardboard or thin cardboard, i.e. of rigid wrapping material that has to be previously weakened at the folding lines. According to what has been illustrated in Figure 25, the blank 50 comprises a plurality of elements that have been labelled, where possible, with accented reference numbers that are the same as the reference numbers that distinguish the corresponding elements of the inner container 3.

The packets 1 of cigarettes disclosed above have several advantages, as they are easy and

cheap to make and have a locking device 30 that locks, in a deactivatable manner by an external action of the user, sliding of the inner container 3 with respect to the outer container 4 when the inner container 3 is in the closed configuration. In this manner undesired opening of the packet 1 of cigarettes is avoided.

5 Further, these packets 1 of cigarettes provide the user with a clear indication of the correct opening/closing of the packet 1 of cigarettes. This is owing to the fact that these packets 1 of cigarettes produce a sound both when the open configuration and the closed configuration of the inner container 3 is reached.

Also, the packets 1 of cigarettes disclosed above have a locking device 30 that is
10 particularly effective and reliable over time. This is owing to the fact that the engagement portion 33 has a greater thickness, in particular double, with respect to the thickness of the locking element 31.

Further, the packets 1 of cigarettes according to the invention make extracting the cigarettes easier. This is owing to the fact that it is possible to lock the inner container 3 in
15 the open configuration.

Also, the packets 1 of cigarettes disclosed above are particularly aesthetically pleasing. This is because the locking element 31 is concealed by the outer container 4 both in the closed configuration and in the open configuration of the inner container 3.

Following the numerous advantages presented by the packets 1 of cigarettes disclosed
20 above, the shape of the packets 1 of cigarettes can be repeated entirely also to make a carton of cigarette packets, which carton is substantially the same as the packets 1 of cigarettes disclosed above with the sole exception of containing a group of cigarette packets instead of a group of cigarette.

CLAIMS

1. Packet (1) of smoke articles comprising:

an inner container (3), which houses a group (2) of smoke articles;

an outer container (4), the interior of which slidably houses the inner container (3) so as to enable the inner container (3) to slide with respect to the outer container (4) between a closed configuration, wherein the inner container (3) is inserted inside the outer container (4), and an open configuration, wherein the inner container (3) is partly extracted from the outer container (4); and

at least one locking device (30) which comprises a locking element (31) and an engagement portion (33) and locks, in a deactivatable manner by an external action of a user, sliding of the inner container (3) with respect to the outer container (4) when the inner container (3) is in the closed configuration,

the packet (1) is **characterised in that**

the locking element (31) protrudes inwards from a wall (37) integral with the outer container (4) and has a locking edge (32); and

the engagement portion (33) protrudes outwards from a wall (8) integral with the inner container (3) and has a first engagement edge (34) which faces, in the closed configuration of the inner container (3), the locking edge (32) of the locking element (31), and engages the locking edge (32) during the packet (1) opening movement, and a second engagement edge (35) which faces, in the open configuration of the inner container (3), the locking edge (32) of the locking element (31), and engages the locking edge (32) during the packet (1) closing movement.

2. Packet (1) of smoke articles according to claim 1, wherein the engagement portion (33) comprises two overlapping engagement panels (21, 22) which form a raised portion on a rear wall (8) of the inner container (3).

3. Packet (1) of smoke articles according to claim 2, wherein the two engagement panels (21, 22) are connected along a folding line (39) and are glued together, wherein the second engagement edge (35) is formed by the folding line (39) and the first engagement edge (34) is formed by the two free edges, opposite the folding line (39), of the engagement panels (21, 22).

4. Packet (1) of smoke articles according to claim 2, or 3, and comprising a lid (16), which is hinged to the outer container (4) along a hinge (17) to close an open top end (11) of the outer container (4), and comprises a top wall (18) and a stiffener panel (19) folded 180°

onto the top wall (18) on the side of the internal surface of the lid (16), wherein the stiffener wall (19) comprises an extension wall (20) comprising a first panel (21), glued to the rear wall (8) of the inner container (3), and a second panel (22) folded 180° onto the first panel (21) and glued to the first panel (21), wherein the two engagement panels (21, 22) comprises a first engagement panel (21) consisting of the first panel of the extension wall (20) and a second engagement panel (22) consisting of the second panel of the extension wall (20).

5. Packet (1) of smoke articles according to any preceding claim, wherein the locking element (31) comprises at least one locking tab (36) hinged to a top edge of a stiffener panel (37) of a rear wall (13) of the outer container (4) glued to an internal surface of the rear wall (13) of the outer container (4), wherein the locking tab (36) is folded substantially 180° onto an internal surface of the stiffener panel (37) of the rear wall (13) of the outer container (4) when the inner container (3) is in the closed configuration and is substantially aligned with the stiffener panel (37) of the rear wall (13) of the outer container (4) when the inner container (3) is in the open configuration.

6. Packet (1) of smoke articles according to any preceding claim, wherein the locking element (31) comprises two locking tabs (36) hinged to opposite sides of a top edge of a stiffener panel (37) of a rear wall (13) of the outer container (4) glued to an internal surface of the rear wall (13) of the outer container (4), wherein the locking tabs (36) are folded substantially 180° onto an internal surface of the stiffener panel (37) of the rear wall (13) of the outer container (4) when the inner container (3) is in the closed configuration and are substantially aligned with the stiffener panel (37) of the rear wall (13) of the outer container (4) when the inner container (3) is in the open configuration.

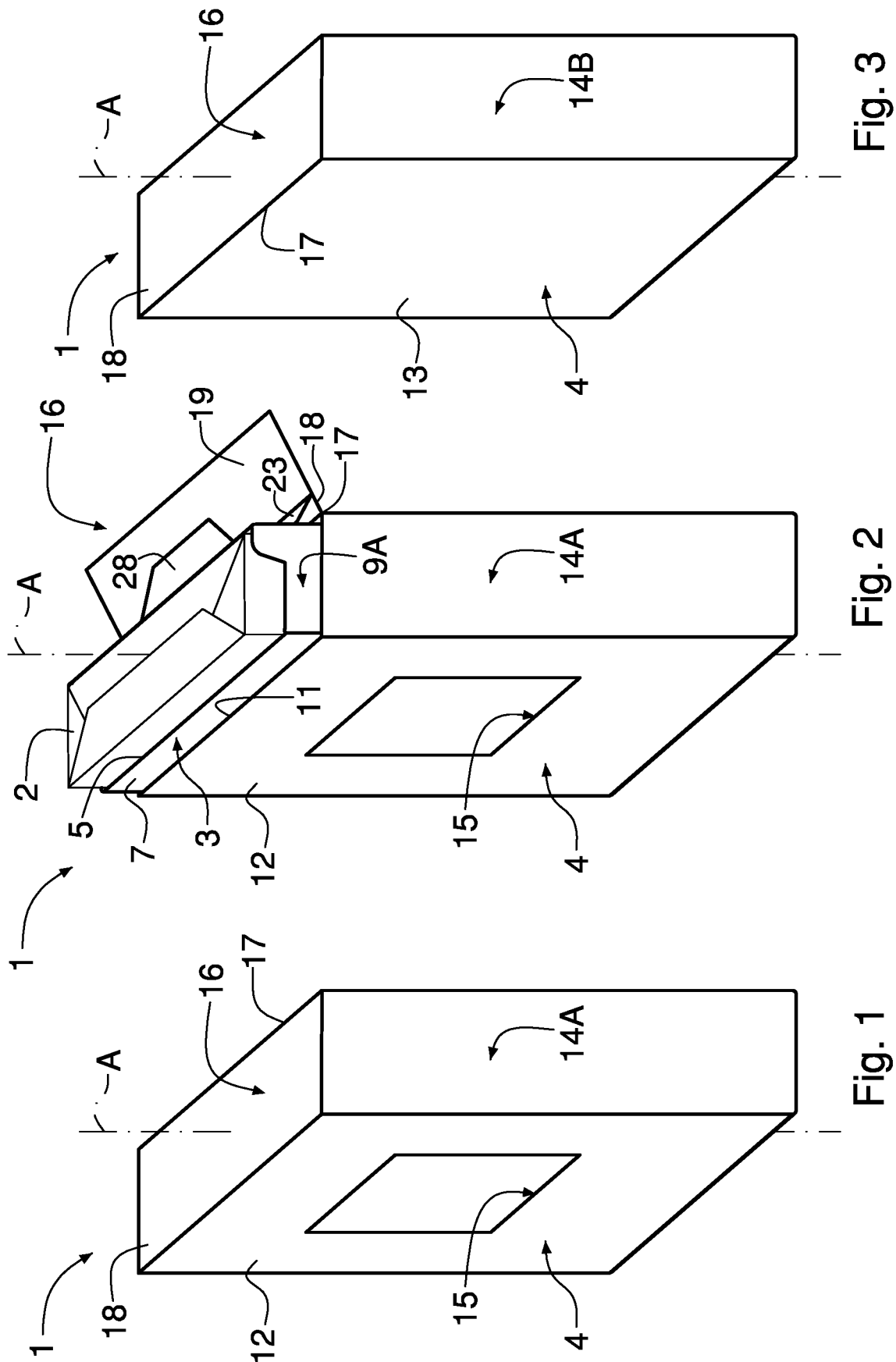
7. Packet (1) of smoke articles according to any preceding claim, wherein the locking device (30) comprises two abutting portions (41, 42) for abutting on the locking edge (32), wherein the two abutting portions (41, 42) are respective portions of the rear wall (8) of the inner container (3) and comprise a first abutting portion (41), bounded below by the first engagement edge (34) of the engagement portion (33) when the inner container (3) is in the closed configuration, and a second abutting portion (42), bounded above by the second engagement edge (35) of the engagement portion (33) when the inner container (3) is in the open configuration.

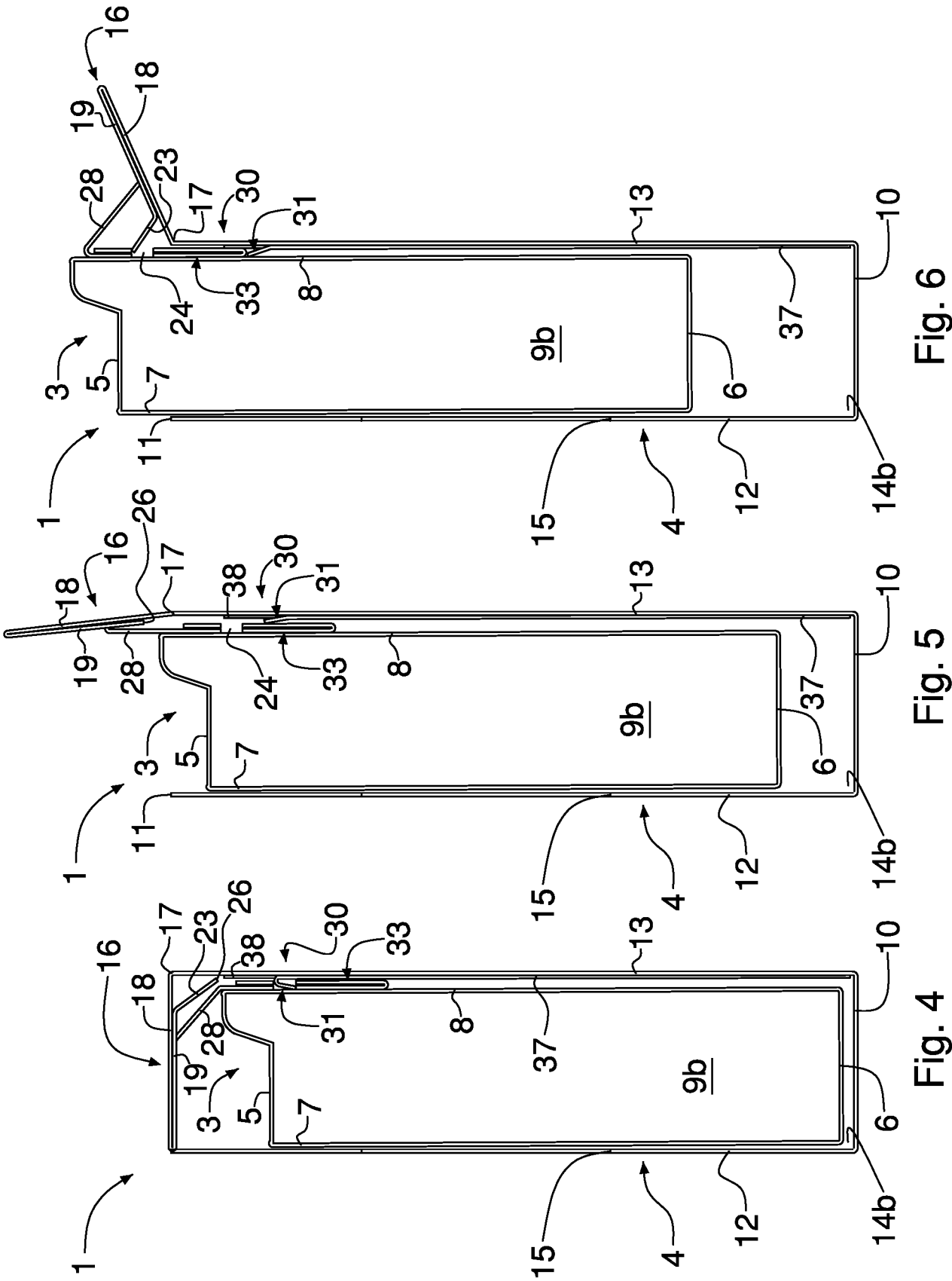
8. Packet (1) of smoke articles according to any preceding claim, wherein the locking element (31) and the engagement portion (33) are configured in such a manner that the

interaction between the locking edge (32) and the first engagement edge (34), and/or the interaction between the locking edge (32) and the second engagement edge (35), produces a sound.

9. Packet (1) of smoke articles according to any preceding claim, wherein the locking element (31) is concealed by the outer container (4) in the closed configuration and in the open configuration of the inner container (3).

10. Packet (1) of smoke articles according to any one of claims 4 to 9, wherein the packet (1) comprises at least one slot (24) integral with a rear wall (8) of the inner container (3) and the lid (16) comprises at least one engaging tab (23) protruding towards the inside of the packet (1), wherein in the closed configuration of the inner container (3) the at least one engaging tab (23) is disengaged from the at least one slot (24) and in the open configuration of the inner container (3) the at least one engaging tab (23) is engaged in the at least one slot (24) to lock, in a deactivatable manner by an external action of a user, the inner container (3) in the open configuration, and wherein the interaction between the at least one slot (24) and the at least one tab (23) produces a sound when the open configuration of the inner container (3) is reached.





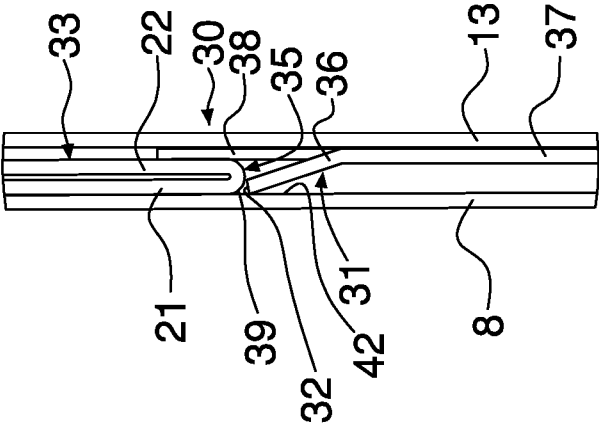


Fig. 9

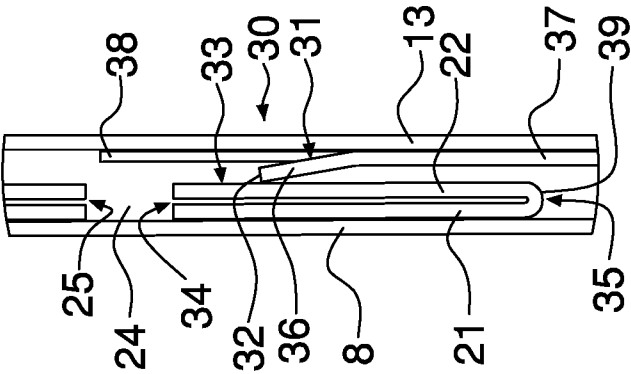


Fig. 8

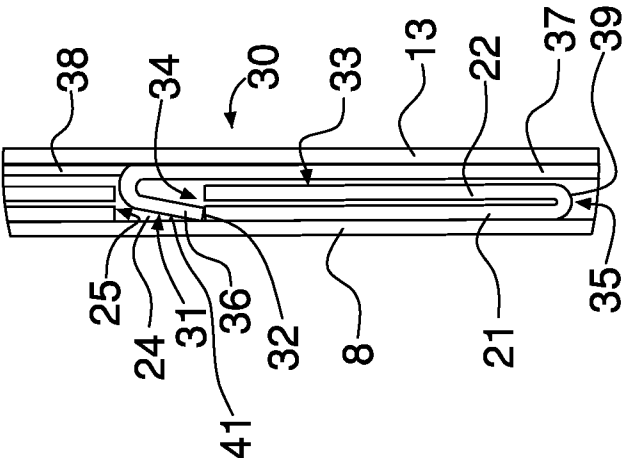


Fig. 7

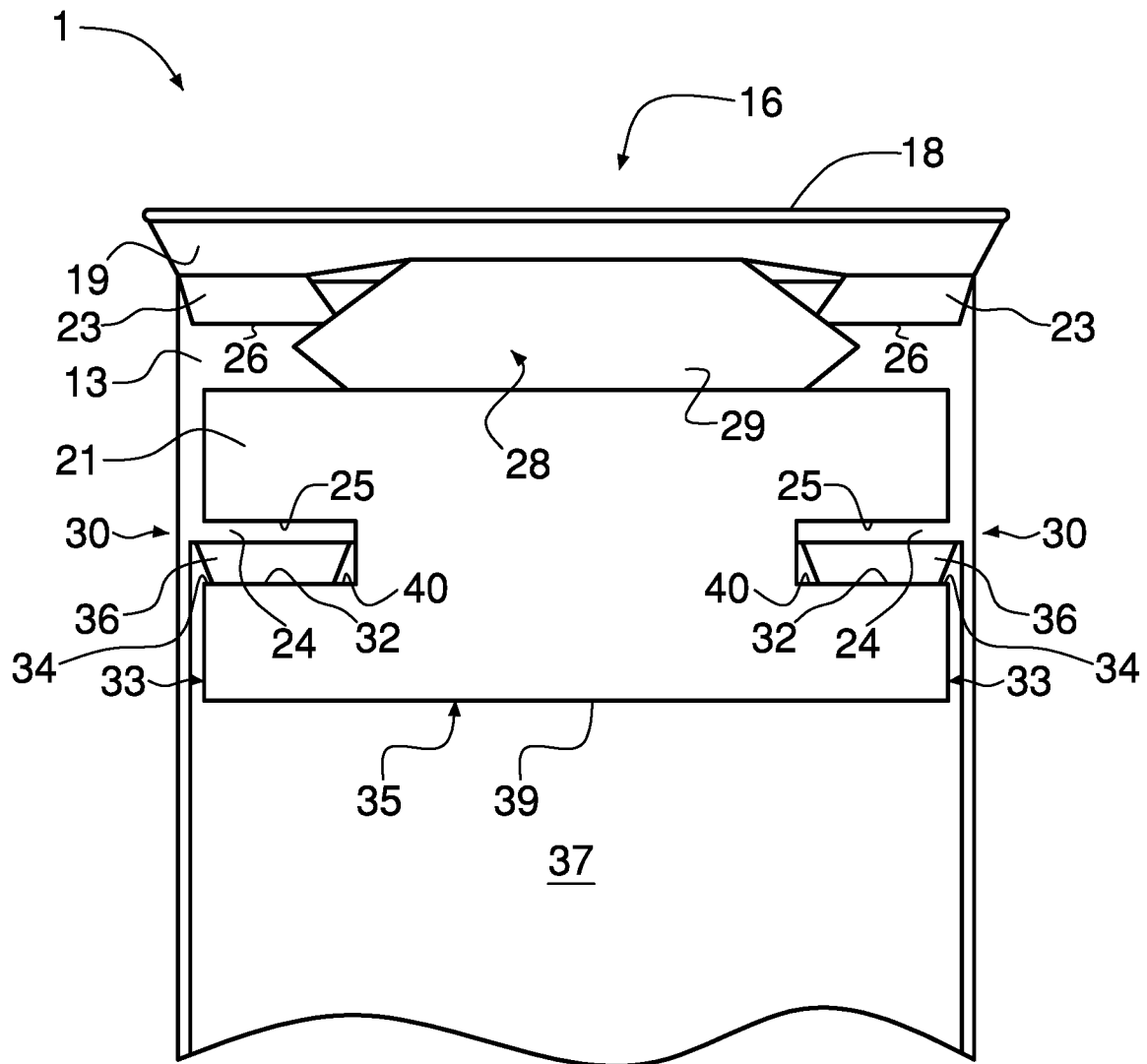


Fig. 10

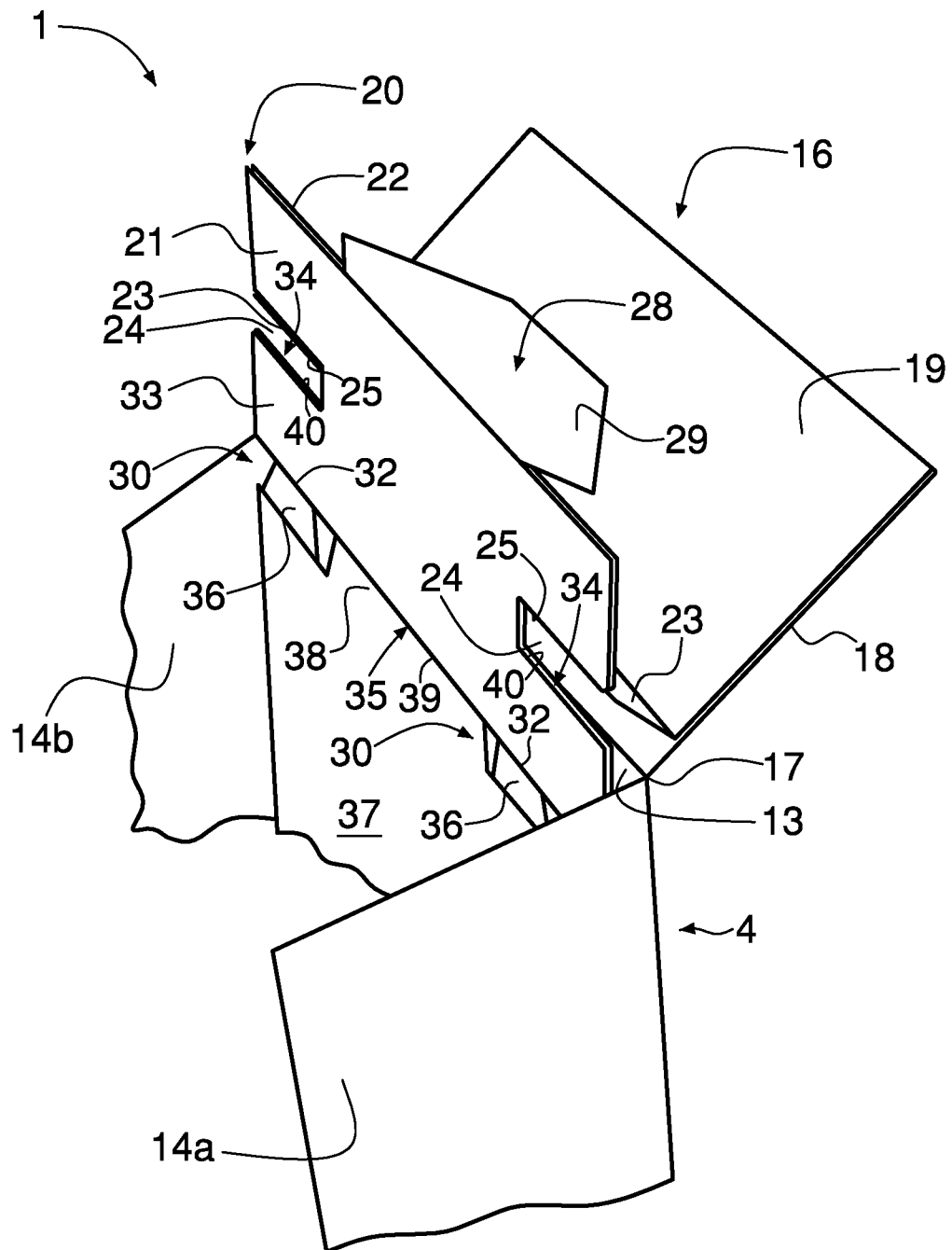


Fig. 11

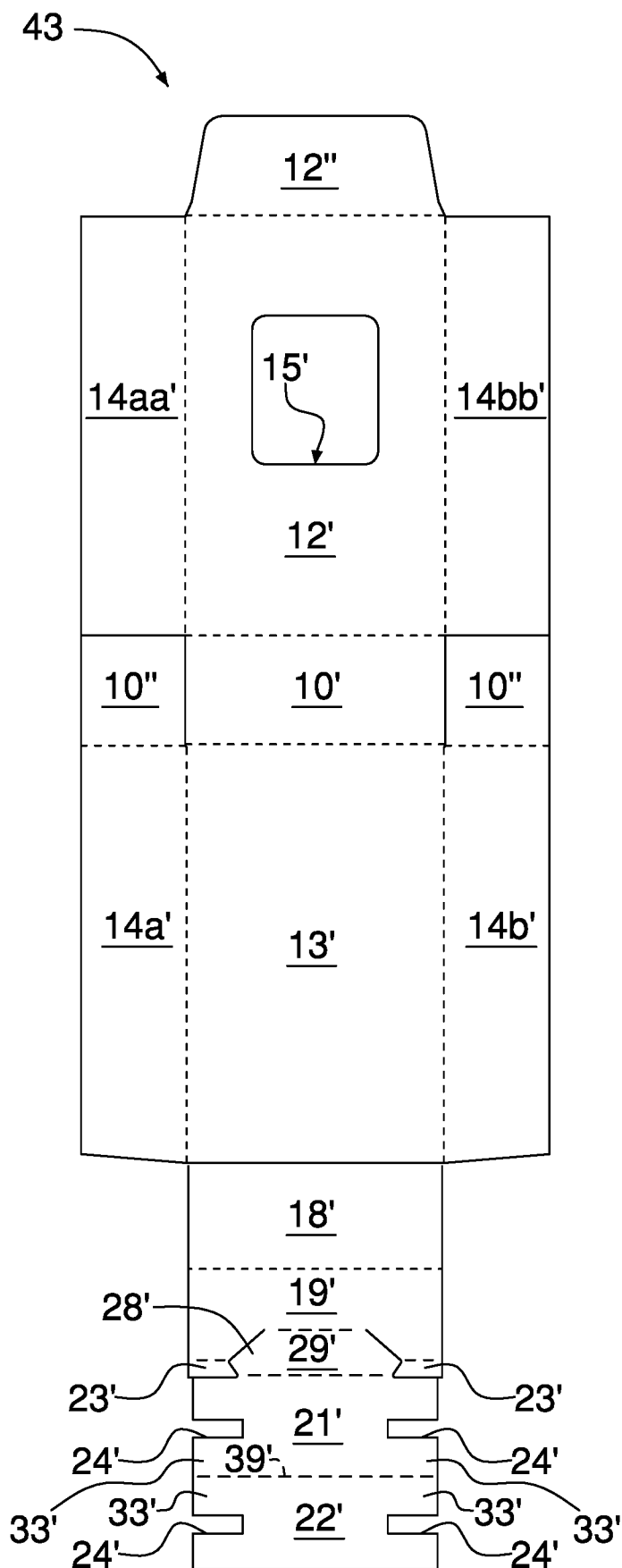


Fig. 12

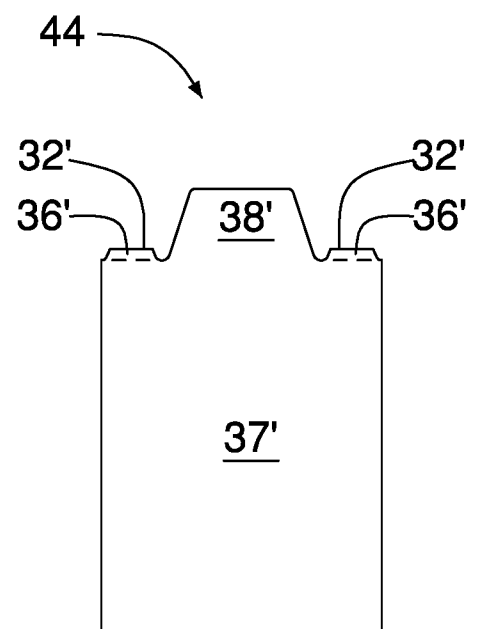


Fig. 13

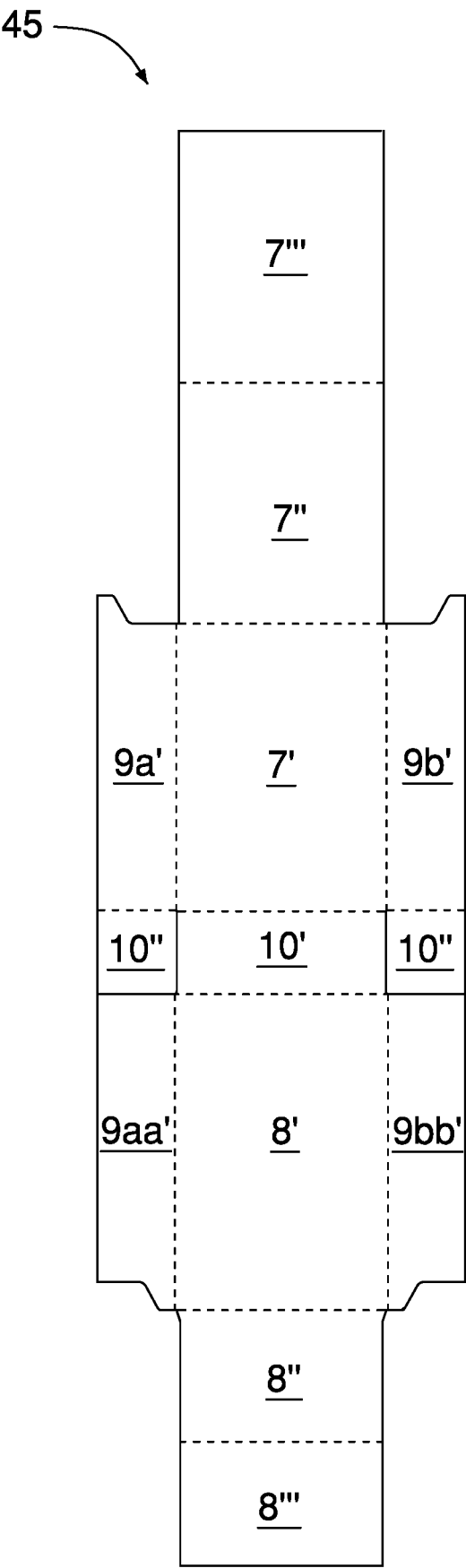
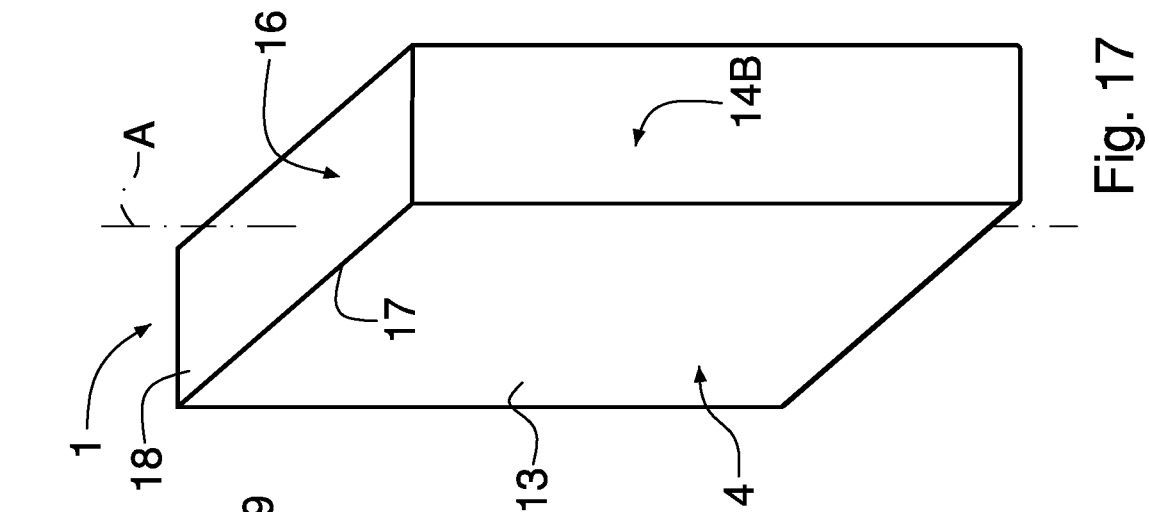
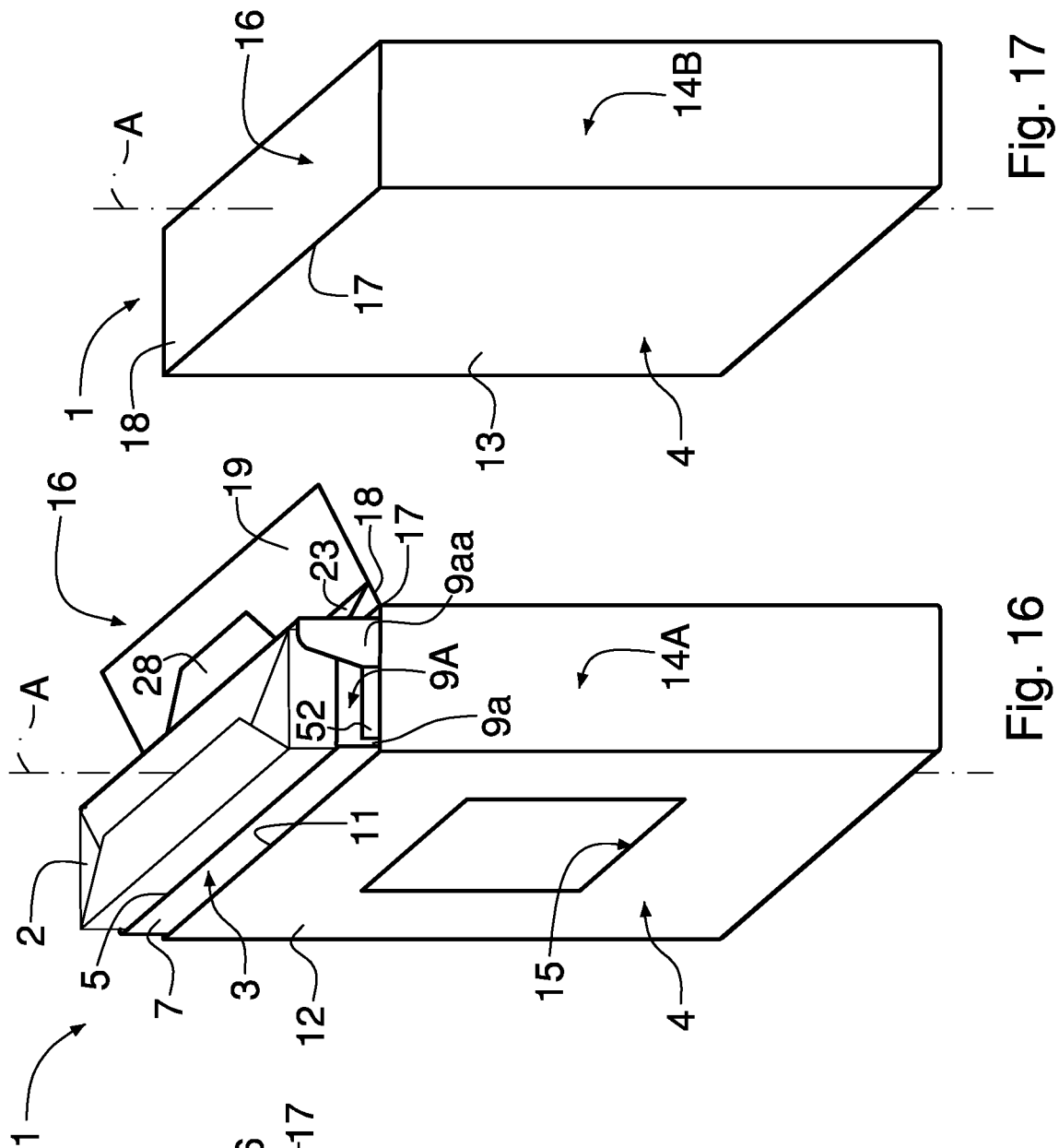
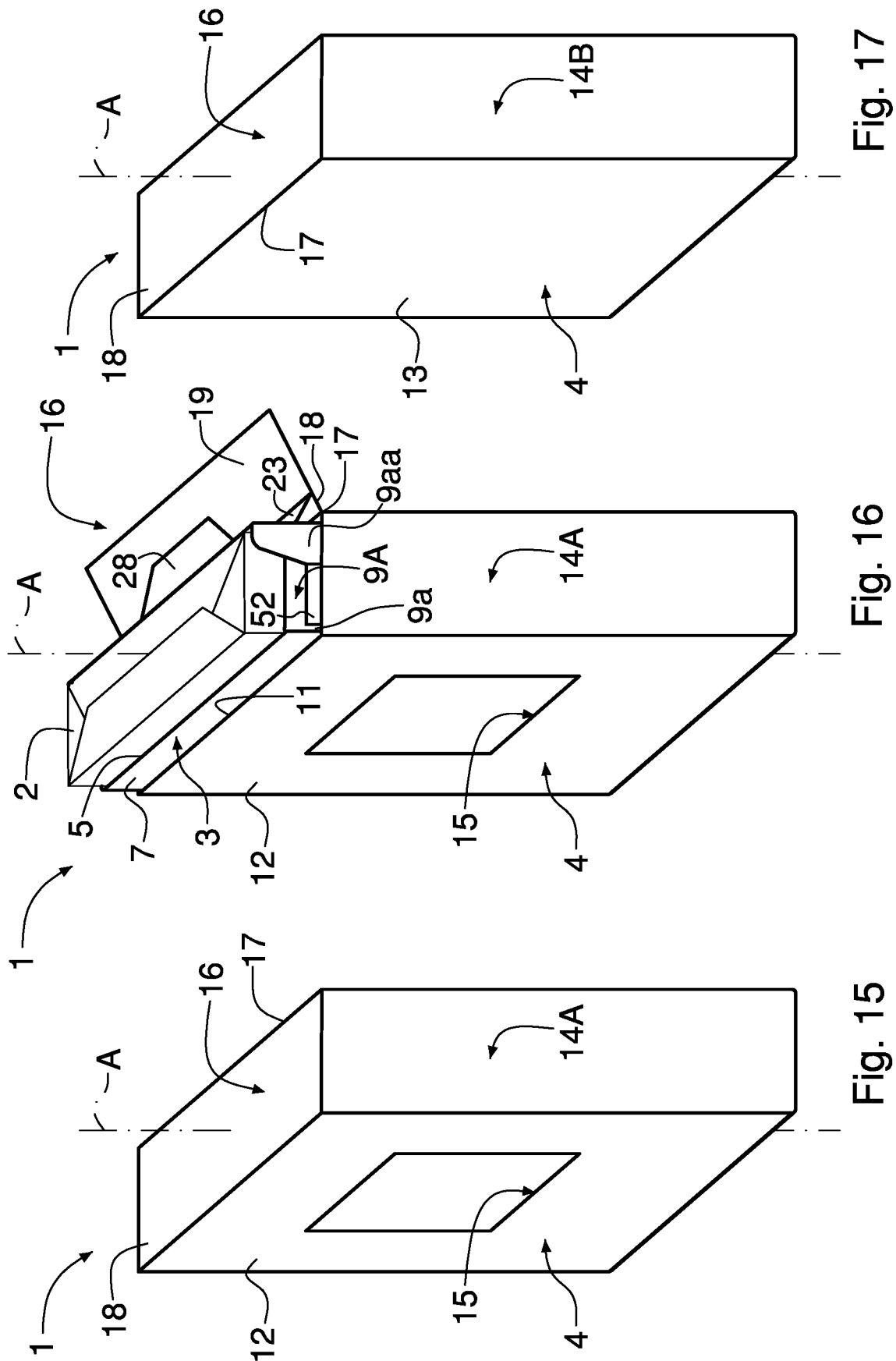


Fig. 14



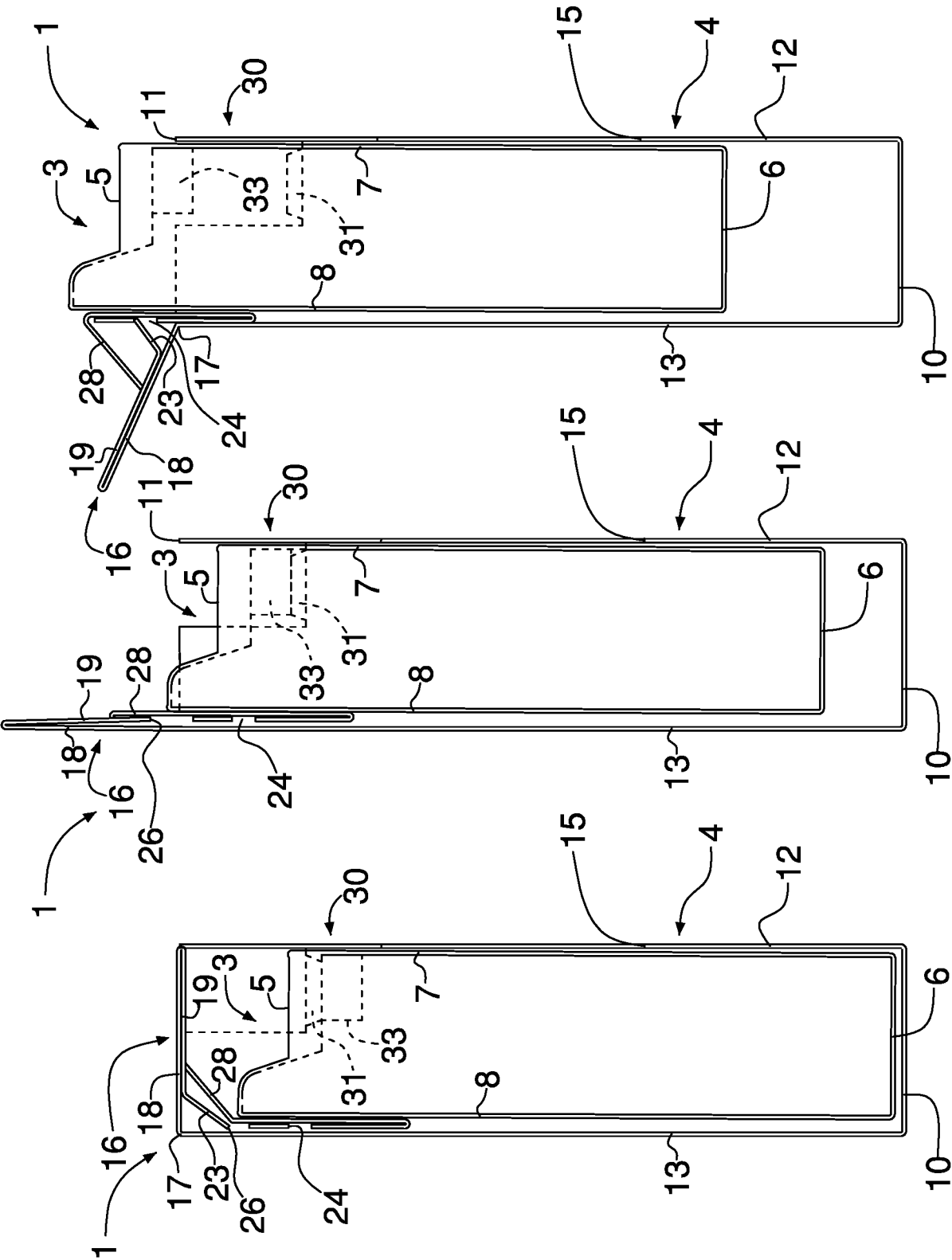


Fig. 20

Fig. 19

Fig. 18

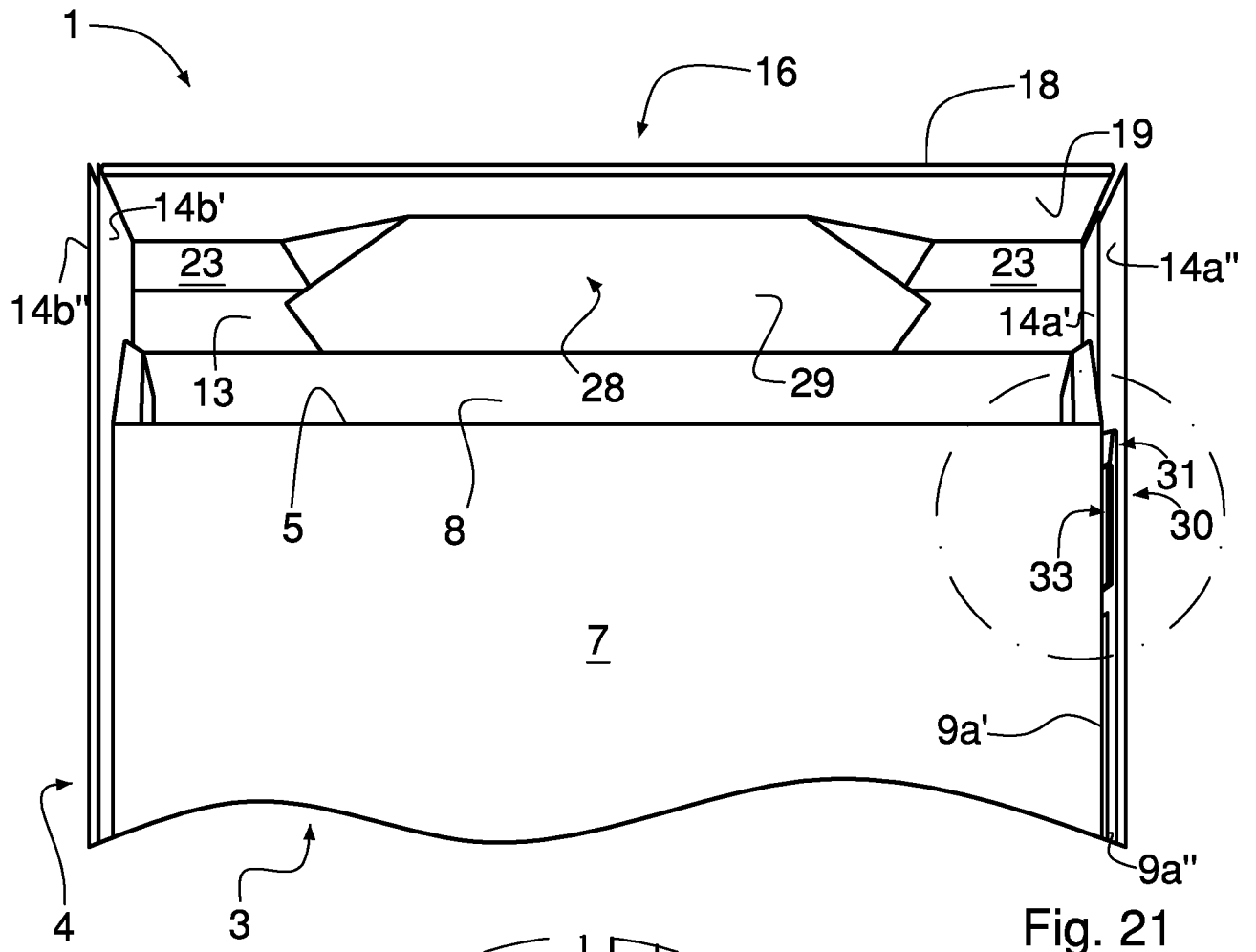


Fig. 21

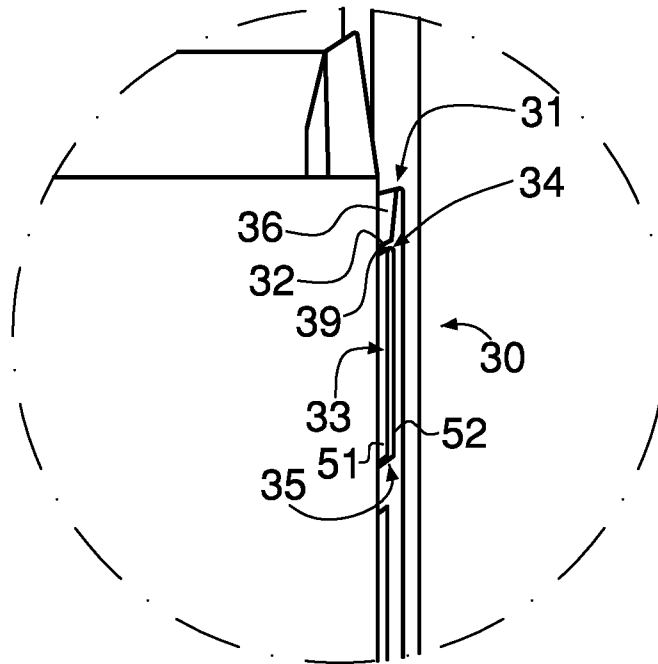


Fig. 22

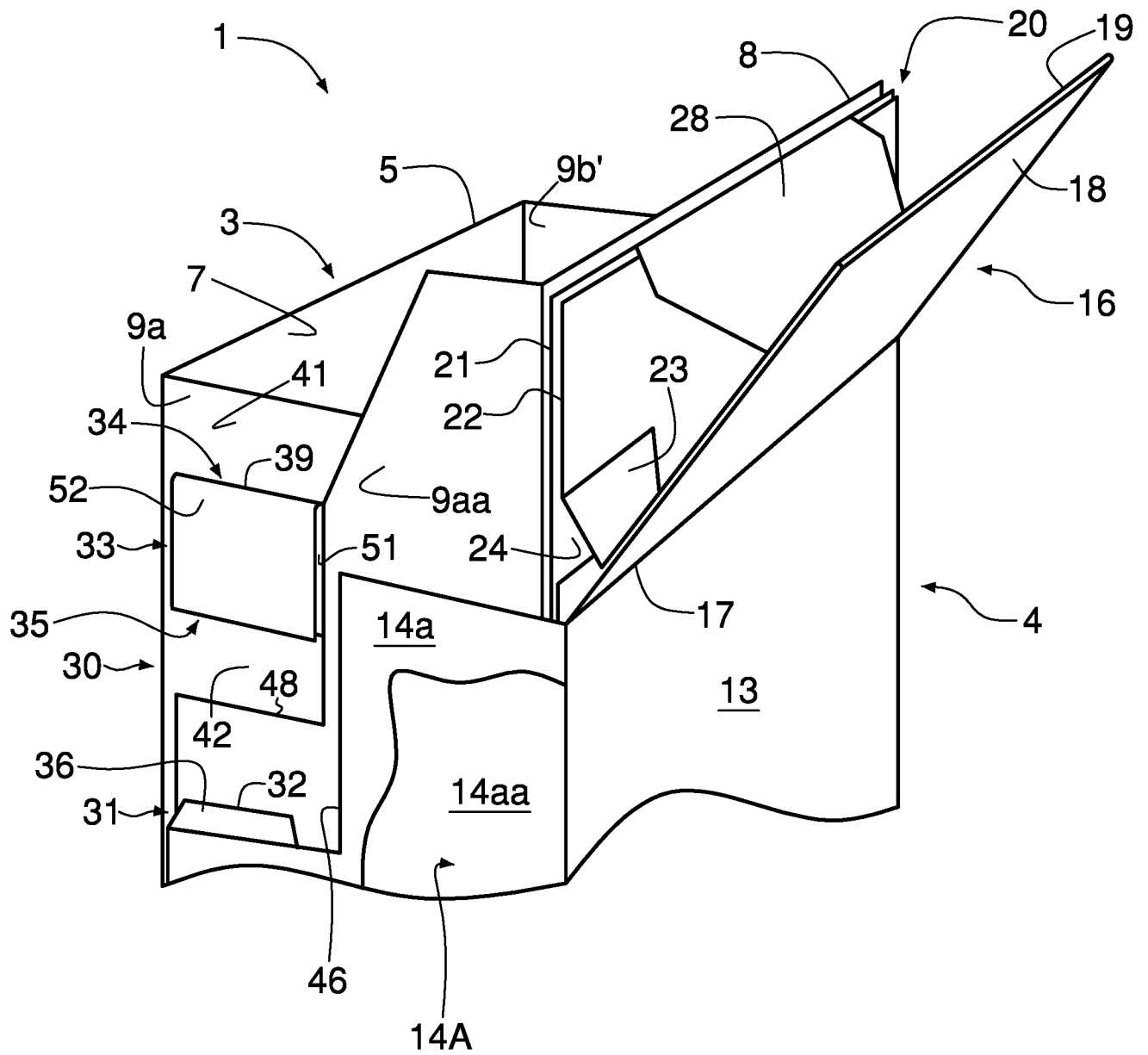


Fig. 23

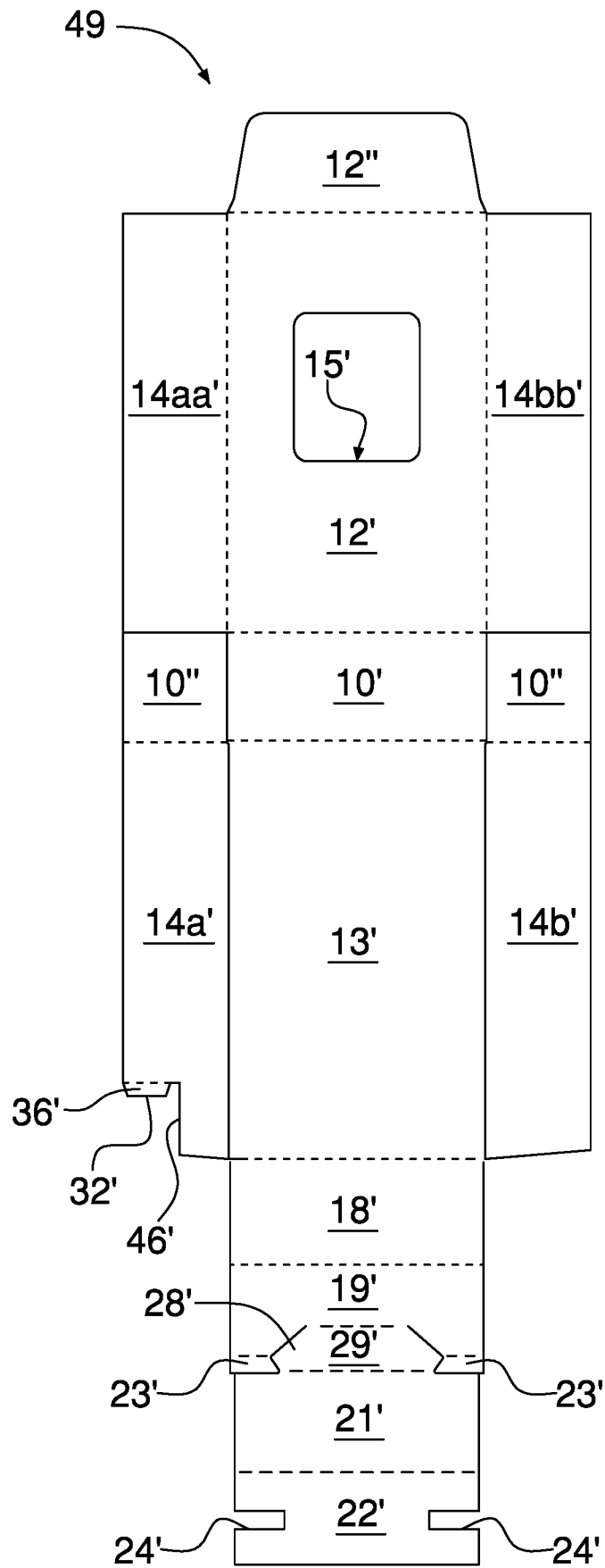


Fig. 24

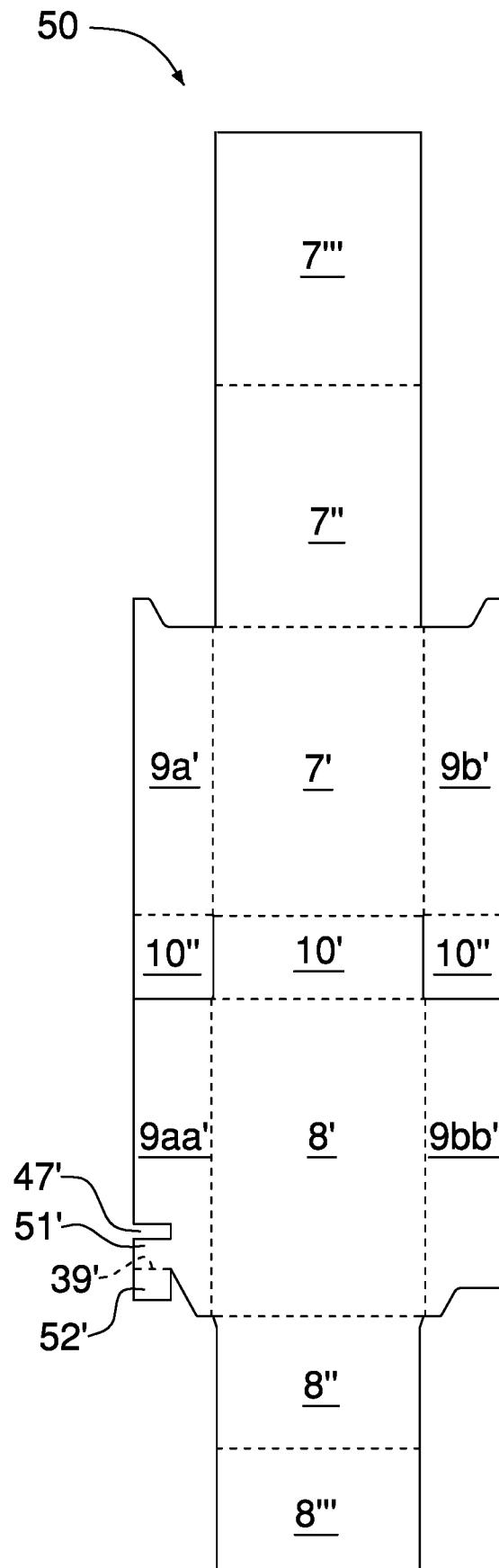


Fig. 25

INTERNATIONAL SEARCH REPORT

International application No

PCT/IB2016/050869

A. CLASSIFICATION OF SUBJECT MATTER

INV. B65D85/10

ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

B65D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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A	EP 2 716 564 A1 (JT INT SA [CH]) 9 April 2014 (2014-04-09) paragraphs [0032] - [0050]; figures 1-7 -----	1-10
A	WO 2012/104222 A1 (BRITISH AMERICAN TOBACCO CO [GB]; BLICK KEVIN [GB]; SIMPSON MIKE [JP];) 9 August 2012 (2012-08-09) page 12, lines 18-29 - page 13, lines 7-22; figures 1-4 -----	1-10
A	GB 2 466 204 A (BRITISH AMERICAN TOBACCO CO [GB]) 16 June 2010 (2010-06-16) page 11, lines 1,2; page 9, lines 20-32 - page 10; figures 3,9 -----	1-10
A	DE 10 2005 058720 A1 (BAT CIGARETTENFAB GMBH [DE]) 14 June 2007 (2007-06-14) paragraphs [0046], [0047]; figures 4,5 ----- -/-	1-10



Further documents are listed in the continuation of Box C.



See patent family annex.

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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"&" document member of the same patent family

Date of the actual completion of the international search

11 May 2016

Date of mailing of the international search report

20/05/2016

Name and mailing address of the ISA/

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Visentin, Mauro

INTERNATIONAL SEARCH REPORT

International application No

PCT/IB2016/050869

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 2013/168142 A1 (GD SPA [IT]) 14 November 2013 (2013-11-14) 22, lines 1-17; page 12, lines 12-17 - page 21; figures 1-6,24,25 -----	1-10

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IB2016/050869

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