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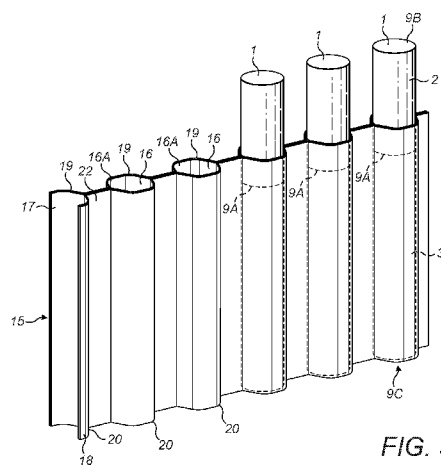


FIG. 3

(57) Abstract: The invention relates to an assembly comprising a support having a first support member comprising a first channel, and a second support member comprising a second channel, wherein the first and second support members are relatively positioned so that the first and second channels together form a pocket having a mouth at an axial end of the pocket, and a smoking article having first and second portions attached to each other and aligned along a longitudinal axis of the smoking article so that the first portion defines a first end of the smoking article, wherein the smoking article is arranged within the pocket so that the first portion of the smoking article extends through the mouth from within the pocket and the first end of the smoking article is outside of the pocket, as well as processes for preparing the same and packs, such as but not limited to cigarette packs, comprising the assembly of the invention.

ASSEMBLY FOR SUPPORTING SMOKING ARTICLES

Technical Field

The present invention relates to an assembly for supporting articles such as smoking
5 articles.

Background

Many variations of packs for articles such as smoking articles have been employed.
Improvements in these types of packaging are desired.

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Summary

According to one embodiment, the invention provides an assembly comprising a
support and a smoking article. The support has a first support member comprising a
first channel, and a second support member comprising a second channel. The first and
15 second support members are relatively positioned so that the first and second channels
together form a pocket. The pocket has a mouth at an axial end of the pocket. The
smoking article has first and second portions which are attached to each other and
aligned along a longitudinal axis of the smoking article so that the first portion defines
a first end of the smoking article. The smoking article is arranged within the pocket so
20 that the first portion of the smoking article extends from within the pocket through
the mouth of the pocket, and the first end of the smoking article is outside of the
pocket.

The support is arranged to hold a smoking article which comprises coaxially,
25 longitudinally attached first and second portions, which may be cylindrical portions,
such as the filter and rod of smokeable material of a filter tipped cigarette.

Part of the first portion of the smoking article protrudes from the mouth of the pocket,
and the first end of the smoking article may be at least 10mm from the mouth of the
30 pocket. For example, the extent of protrusion of the first end of the smoking article
from the mouth of the pocket may be at least about 11mm, 12mm, 13mm, 14mm, 15mm,
16mm, 17mm, 18mm, 19mm, or 20mm.

At least part of the second portion of the smoking article may be within the pocket.
35 The distance between the second portion of the smoking article and the mouth of the
pocket may be defined in a number of ways. For example, this distance may be defined

in absolute terms, wherein the second portion of the smoking article may be between about 2mm and about 8mm, such as between about 3mm and about 7mm, and is preferably at least about 5mm from the mouth of the pocket.

5 Alternatively, this distance may be defined by reference to a feature of the smoking article. For example, the second portion of the smoking article may be a distance from the mouth of the pocket that is between about 0.2D and about 1.5D, or between about 0.4D and about 1.2D, and is preferably at least about 0.6D, 0.8D, or 1D, wherein D is a
10 width of the smoking article perpendicular to the longitudinal axis of the smoking article.

In another example, the second portion of the smoking article may be a distance from the mouth of the pocket that is between about 3% and about 15%, or between about 5% and about 12%, and is preferably at least about 7%, or about 10%, of the total length of
15 the smoking article.

In another alternative, the distance between the second portion of the smoking article and the mouth of the pocket may be defined by reference to a feature of the first portion of the smoking article. For example, the second portion of the smoking article may be a
20 distance from the mouth of the pocket that is between about 10% and about 50%, or between about 20% and about 40%, and is preferably at least about 25%, or about 30%, of the total length of the first portion of the smoking article.

The pocket may be an open-ended pocket, and the pocket may comprise a second
25 mouth at a second axial end of the pocket. Thus, in this case, the pocket is simply a cavity or compartment which is open at both ends, and which is configured to hold a smoking article.

The second portion of the smoking article may extend through the second mouth from
30 within the pocket. The length of the pocket may be a length that is less than the length of the smoking article. To provide sufficient mechanical support and protection for the smoking article, the minimum length of the pocket may be about 25mm. The length of the pocket may be at least about 30mm, 40mm, or 50mm. The length of the pocket may be defined with reference to the length of the smoking article, and in this case the
35 length of the pocket may be between one 0.2L and 0.8L, such as between about 0.25L and 0.5L or between about 0.3L and 0.4L, and is preferably greater than $1/3L$, wherein

L is the total length of the smoking article. In the case of shorter pockets, a substantial proportion of the length of the smoking article may extend through the second mouth from within the pocket.

5 The second portion of the smoking article may define a second end of the smoking article which is positioned at the second mouth of the pocket. Thus, in this case, the length of the pocket may be equal to the length of the smoking article minus the distance between the mouth and the first end of the smoking article.

10 As an alternative to having a second mouth at a second axial end of the pocket, the pocket may be sealed at a second axial end. Thus, in this case, the first end of the smoking article extends through the mouth from within the pocket, and the second end of the smoking article is within the pocket, preferably at or near the sealed end of the pocket.

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The first and/or second mouth of the pocket may be perpendicular to a longitudinal axis of the smoking article.

20 The pocket may have a minimum width perpendicular to a longitudinal axis of the pocket that is less than 110%, such as less than 107%, 105%, or 103% of a width of the smoking article perpendicular to the longitudinal axis of the smoking article. For example, the pocket may have a minimum width perpendicular to a longitudinal axis of the pocket that is less than 1mm, such as less than 0.7mm, 0.5mm, 0.3mm, 0.2mm, or 0.1mm greater than the diameter of the smoking article.

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The first and second support members may comprise first and second grooved webs. In this case, the first channel of the first support member may be provided by a first groove in the first grooved web, and the second channel of the second support member may be provided by a second groove in the second grooved web. All of the grooved webs employed in the present invention may be made of the same material or of different materials. Any suitable material may be used including but not limited to thin walled card. For example, the webs may be impervious to water, moisture and/or air. In such circumstances, the webs may be made of one material that is impervious to water/moisture and/or air. Alternatively, the webs may comprise any suitable base material, such as thin walled card, board, film or foil, and further comprise a layer or membrane that is impervious to water, moisture and/or air.

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The first and second support members may be substantially identical. For example, the size, shape, and structure of the first and second channels may be substantially identical. Each of the first and second channels may have a cross section perpendicular
5 to a longitudinal axis of the pocket that has a specific defined shape. For example, the cross section of the first and second channels may be substantially or approximately sinusoidal. Alternatively, the shape of the cross section of the first and second channels may be such that the cross-sectional shape of the pocket formed by the combination of the first and second channels is substantially or approximately polygonal, such as
10 square, rectangular, or triangular, and in this case, is preferably hexagonal. In a further alternative, the cross section of the first and second channels may be substantially or approximately semi-circular, and the cross-sectional shape of the pocket formed by the combination of the first and second channels is substantially or approximately circular or oval.

15 The support may comprise a plurality of pockets. In this case, the plurality of pockets may be arranged in a row. To provide a row of pockets, the first support member may comprise a plurality of first channels, such as 2, 3, 4, 5, 6, or 7 first channels. The plurality of first channels may be equally spaced and equally shaped. The second
20 support member may also comprise a plurality of second channels, such as 2, 3, 4, 5, 6 or 7 second channels. The plurality of second channels may be equally spaced and equally shaped. The plurality of first channels may be substantially identical to the plurality of second channels. The first and second support members may relatively positioned so that respective pairs of the plural first channels and plural second
25 channels together form a row of respective pockets. For example, the row may comprise 2, 3, 4, 5, 6, or 7 pockets. Indeed, the row may be produced in a continuous process and may therefore comprise an indefinite number of pockets.

Each of the first and second support members may comprise a corrugated sheet
30 comprising a front face and a rear face. In this case, the front face may comprise a plurality of front face channels, and the rear face may comprise a plurality of rear face channels. Preferably the plural front face channels are aligned parallel to, and are interspaced between, the plural rear face channels. The first and second support members may be relatively positioned so that respective pairs of the plural rear face
35 channels of the first support member and plural front face channels of the second support member together form a row of respective pockets.

The support may further comprise a third support member comprising a plurality of third channels, such as 2, 3, 4, 5, or 6 third channels. When the support comprises a third support member, the third support member may comprise a corrugated sheet
5 which may be similar or substantially identical to the corrugated sheets of the first and second support members. The third support member may comprise a front face and a rear face, wherein the front face of the corrugated sheet of the third support member comprises a plurality of front face channels, and the rear face comprises a plurality of rear face channels. In this case, the third support member may be relatively positioned
10 with respect to the second support member so that respective pairs of the plural rear face channels of the second support member and plural front face channels of the third support member together form a row of respective pockets.

In addition to first, second, and third support members, the support may comprise
15 further support members, such as fourth, fifth, sixth, seventh, eighth, and ninth support members, arranged to provide, for example, 3, 4, 5, 6, 7, or 8 rows of pockets. In this case, all of the support members from which the support is composed may be similar or substantially identical and may, for example, have the same channel structure and configuration. When the support comprises further support members, the first, second,
20 and third support members, and each further support member, may comprise a corrugated sheet comprising a front face and a rear face. Two or more of the corrugated sheets may be substantially identical. The front face of the corrugated sheet of the further support member may comprise a plurality of front face channels, and the rear face of the corrugated sheet of the further support member may comprise a plurality of
25 rear face channels. Each further support member may be relatively positioned with respect to an adjacent one of the support members so that respective pairs of the plural front face channels of the further support member and plural rear face channels of the adjacent support member together form a row of respective pockets.

30 The support may comprise, for example, twenty pockets in total. In this case, the support may comprise four support members, forming three rows of pockets. The support members may be arranged to provide a first row of seven pockets, between the first and second support members, a second row of six pockets, between the second and third support members, and a third row of seven pockets, between the third and fourth
35 support members.

Generally, when the support comprises a plurality of rows, the odd-numbered rows, such as the first, third, and fifth rows, may all have the same number of pockets, and the even-numbered rows, such as the second, fourth, and sixth rows, may all have the same number of pockets, which may be the same or different to the number of pockets
5 in the odd-numbered rows. In other embodiments, the support may comprise any number of pockets, such as 1-50 pockets, 2-40 pockets, 5-35 pockets, 6-30 pockets, 7-28 pockets, 8-25 pockets, 10-22 pockets, or 12-20 pockets, such as, for example, 13, 14, 15, 16, 17, or 18 pockets.

10 Smoking articles, which may be substantially identical, may be arranged in the respective pockets. In this case, equal proportions of the smoking articles may extend through the mouths of the respective pockets.

The support members may be bonded together. For example, the support members
15 may be bonded to form an alternating sequence of pockets and bonded sections. Specifically, if the areas of each support member between the channels are viewed as ridges, the ridges of the first support member may be arranged to face and align with the ridges of the second support member. The support members may be bonded together at these points of alignment (ridges) to form a support having a honeycomb
20 structure, wherein the pockets of the support may be substantially hexagonal in cross-section. The support members may be arranged such that the alternating sequence of pockets and bonded sections terminates at one or both ends at the position of a bonded section. Alternatively, one or both ends may terminate at a position that is not bonded. In this case, when the support is used within a container, the terminal non-bonded
25 portion may provide part of a pocket together with one or more walls of the container. Any suitable bonding means may be employed to bond the support members, including but not limited to adhesive.

The smoking article may be a filter cigarette wherein the first portion of the smoking
30 article comprises a filter, and the second portion of the smoking article comprises a rod of smokable material.

According to a second embodiment, the invention provides a pack comprising an assembly of the first embodiment and a container containing the assembly.

The support used in the pack assembly may comprise a plurality of pockets as discussed above. All of the pockets may be formed between adjacent support members and all of the pockets may be similar or substantially identical in size, shape and structure. Alternatively, one or more of the pockets may be formed between one or more of the support members (such as two adjacent support members) and one or more walls of the container.

The container of the pack may be a hinge-lid pack, such as a hinge-lid cigarette pack, having a longitudinal axis, which may be considered to be oriented with the smoking articles aligned vertically within the pack, extending in a direction parallel to the longitudinal axis of the pack. In this case, the end of the support comprising the mouth of the pocket can be considered to describe the top of the support. The top of the support may be arranged nearest to, and facing towards, the openable end of the container, such that when the pack is positioned with the hinge-lid at the top, the pocket extends vertically within the support, with the mouth at the top. The support is preferably arranged within the container with the support members aligned parallel to the front and back faces of the pack, as opposed to being aligned parallel to the side faces of the pack. Thus, the assembly may be arranged in the hinge-lid pack with the smoking articles extending in respective directions parallel to the longitudinal axis of the hinge-lid pack, and wherein an end of the support comprising the mouth of the pocket is arranged at an openable end of the hinge-lid pack.

The top of the support, in other words, the end of the support comprising the mouth of the pocket, may be substantially flat. In this case, the top of the support may describe a plane that is perpendicular to a longitudinal axis of the pocket. No portion of the top edge of any of the support members may be substantially higher than any other portion of the top edge of any of the support members. Indeed, the maximum difference in height between any two points on the top edges of the support members may be less than 3mm, is preferably less than 2mm, and is most preferably less than 1mm. In this way, the top of the support, and specifically the top edges of the support members, describe a plane. The plane described by the top of the support may be substantially parallel to the top of the container (i.e. the hinge-lid in the closed position). The plane described by the top of the support may in addition, or alternatively, be substantially parallel to the base of the container (i.e. the face of the container that is directly opposite to the openable end of the container). In this case, because the plane formed by the top of the support is parallel to the bottom of the container, when the support

comprises a plurality of pockets, regardless of which pocket of the support the smoking article is inserted into, it will protrude from the support by substantially the same amount. Thus, the container and the assembly may be arranged so that when the assembly comprises a plurality of smoking articles, all of the smoking articles held
5 within the support protrude from the support by the same amount.

The pack may comprise a body having an inner frame. In this case, the inner frame may comprise an opening, and the support may be arranged within the inner frame so that the end of the support comprising the mouth of the pocket is further inside the body
10 than any part of the opening of the inner frame.

The bottom of the support, in other words, the end of the support opposite the end comprising the mouth of the pocket, may be in contact with the bottom of the container, in other words, the end of the container opposite the openable end, so that
15 the pocket extends to the bottom of the container. Alternatively, the bottom of the support may not extend to the bottom of the container, such that there is a gap between the bottom of the support and the bottom of the container. In this case, the support may be anchored in the pack in the appropriate position to provide the desired degree of protrusion of the smoking article from the mouth of the pocket.

20

In a third embodiment, the invention provides a method for manufacturing an assembly of the present invention, comprising a support and a smoking article. The method may comprise:

- a) providing a first support member comprising a first channel having a first end, a
25 second support member comprising a second channel having a second end, and a smoking article having first and second portions attached to each other and aligned along a longitudinal axis of the smoking article so that the first portion defines a first end of the smoking article; and,
- b) relatively arranging the smoking article, the first support member, and the
30 second support member, so that the first and second channels together form a pocket, the first and second ends of the first and second channels form a mouth of the pocket, and the smoking article is arranged within the pocket so that the first portion of the smoking article extends through the mouth from within the pocket and the first end of the smoking article is outside of the pocket.

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The method may involve forming the support around the smoking article. Thus, the

method may comprise:

- 1) relatively arranging the smoking article and the first channel of the first support member so that the first portion of the smoking article extends from within the first channel through the first end of the first channel, and so that the first end of the smoking article is outside of the first channel; and
- 2) positioning the second support member relative to the first support member and the smoking article, so that the first and second channels together form the pocket and the smoking article is arranged in the pocket.

Alternatively, the method may involve forming the support and then inserting the smoking article into the support. Thus, the method may comprise:

- 1) relatively positioning the first and second support members so that the first and second channels together form a pocket having a mouth at an axial end of the pocket defined by the first and second ends of the first and second channels of the first and second support members; and,
- 2) relatively positioning the pocket and the smoking article so that the first portion of the smoking article extends through the mouth from within the pocket and the first end of the smoking article is outside of the pocket.

The assembly may be formed into a pack, for example by a method comprising bonding the assembly into a foil or other substantially air-impermeable wrapping to maintain the relative position of the support and smoking article, and then folding and bonding the two dimensional pack net around the wrapped assembly.

Brief Description of the Drawings

Embodiments of the invention will now be described, by way of example only, with reference to accompanying drawings, in which:

Figure 1 shows the components of a filter tipped cigarette.

Figure 2a shows an assembly according to an embodiment of the present invention illustrated in a hinge-lid cigarette pack.

Figure 2b shows in detail a portion of the assembly of Figure 2a.

Figure 3 shows an assembly according to one embodiment comprising a first support member, a second support member, and a plurality of filter tipped cigarettes.

Figure 4a shows an assembly according to one embodiment comprising four support members and a filter tipped cigarette.

Figure 4b is a diagram of the assembly shown in Figure 4a.

Figure 5a is a diagram showing the position of the pockets of an assembly according to one embodiment of the present invention within a container.

Figure 5b is a diagram showing the position of the pockets of an assembly according to one embodiment of the present invention within a container.

5 Figure 6a is a diagram showing a method of manufacturing an assembly according to one embodiment of the present invention.

Figure 6b shows in detail an aspect of the manufacturing process of Figure 6a.

Figure 6c shows an assembly manufactured by the method of Figures 6a or 6d.

10 Figure 6d is a diagram showing a method of manufacturing an assembly according to one embodiment of the present invention.

Figures 7a, 7b, 7c, and 7d show a method of incorporating an assembly according to one embodiment of the present invention into a pack having a hinge-lid.

Detailed Description

15 As used herein, the term “smoking article” includes smokeable products such as cigarettes, cigars and cigarillos whether based on tobacco, tobacco derivatives, expanded tobacco, reconstituted tobacco or tobacco substitutes, and also heat-not-burn products and other devices capable of generating and delivering an aerosol. Smoking articles may be fitted with a filter, which is frequently longitudinally, coaxially, attached
20 to a source of smokeable material.

The smoking article used in the assembly of the invention is preferably a filter tipped cigarette. Smoking articles such as cigarettes and their formats are generally named according to the cigarette length: “regular” (typically in the range 68-75 mm, such as from about 68 mm to about 72 mm), “king-size” (typically in the range 75 -
25 91mm, such as from about 79 mm to about 88 mm), “long” or “super-king” (typically in the range 91-105 mm, such as from about 94 mm to about 101 mm) and “ultra-long” (typically in the range from about 110 mm to about 121 mm). Cigarettes are also named according to their circumference: “regular” (about 23-25 mm), “wide” (greater than 25
30 mm), “slim” (about 22-23 mm), “demi-slim” (about 19-22 mm), “super-slim” (about 16-19 mm), and “micro-slim” (less than about 16 mm). Accordingly, a cigarette in a king-size, super-slim format will, for example, have a length of about 83 mm and a circumference of about 17 mm. The smoking article can, for instance, be from 68 to 121mm in length and from 14 to 25mm in circumference. Indeed, the smoking article
35 may have any suitable size and shape as appropriate. Filter tipped cigarettes generally comprise filters that are about 15mm, 17mm, 20mm, or 25 mm in length. Smoking

articles may be manufactured in any of the above formats, and can be used in an assembly of the invention, for example, cigarettes in the regular, king-size format, namely with a circumference of from 23 to 25 mm and an overall length of from 75 to 91 mm, are one of many formats commercially manufactured which can be used in the disclosed assembly. Generally, smoking articles used in the assembly have diameters in the range of 5-10mm, such as, for example, diameters of approximately, 6, 7, 8, or 9mm.

An example of a smoking article comprising coaxially attached first and second sections is shown in Figure 1. Smoking article 1 is a filter tipped cigarette, which is a “regular” in terms of both length and circumference, and comprises a first portion, which is a filter rod 2, coaxially attached to a second portion, which is a rod of smokeable material 3. The filter rod 2 comprises a substantially cylindrical plug of filter material 4 wrapped in a plugwrap 5 around its circumferential surface. The rod of smokeable material 3 comprises a substantially cylindrical rod of tobacco 6, and the circumferential surface of the tobacco rod 6 is wrapped in a wrapping material 7, such as a cigarette paper.

The rod of smokeable material 3 is coaxially aligned with the filter rod 2, such that the end of the rod of smokeable material 3 abuts the end of the filter rod 2. The rod of smokeable material 3 is attached to the filter rod 2 using a tipping material 8 which overlays the filter rod 2 and partially overlays the rod of smokeable material 3. The position of abutment 9A between the ends of the rod of smokeable material 3 and filter rod 2 is indicated in Figure 1. Thus, during normal use of the smoking article, the position of abutment 9A is hidden by the tipping material 8.

The smoking article 1 has a first end 9B defined by an end of the filter rod 2 furthest from the rod of smokeable material 3, and a second end 9C defined by the end of the rod of smokeable material 3 furthest from the filter rod 2.

The present invention provides a way of packaging smoking articles, including but not limited to smoking articles such as that shown in Figure 1, in a manner that provides protection from bending and/or crushing during transportation and/or storage of the smoking articles. In particular, the disclosed packaging assembly helps prevent damage to smoking articles comprising a first portion (such as a filter rod) coaxially attached to a second portion (such as a rod of smokeable material). For

example, with reference to Figure 1, the present assembly reduces the possibility of damage to the cigarette at the position of abutment 9A between the filter rod 2 and the rod of smokeable material 3.

5 The present invention is based on the finding that the use of a packaging insert in a smoking article pack, to support smoking articles such as that shown in Figure 1, although intended to support and protect smoking articles, can actually lead to damage of the smoking articles by directing and focusing forces to specific areas of the smoking article. The region of the smoking article that has been found to be most susceptible to
10 damage is the position of abutment of the first and second sections of the smoking article.

 In particular, it has been found that withdrawing the smoking article at an angle to the longitudinal axis of the smoking article, rather than in a direction that is
15 substantially parallel to the longitudinal axis of the smoking article causes a bending force to be exerted on the smoking article by the mouth of the pocket of packaging insert from which the smoking article is being withdrawn. The bending force, and the potential for resulting damage to be caused to the smoking article, has now been found to be most significant as the user starts to withdraw the smoking article from the
20 pocket. Specifically, this is because as the user starts to apply a withdrawing force to the smoking article, the user has no tactile feedback regarding the direction of the force, and is therefore unlikely to apply the force in a direction that is substantially aligned with the longitudinal axis of the smoking article. This problem may be exacerbated in the case of hinge-lid or other closeable packs if the consumer does not open the pack
25 fully before starting to withdraw the smoking article. In this case, the user is more likely to apply a withdrawing force on to the smoking article at an angle to the longitudinal axis of the smoking article, rather than in a direction that is substantially parallel to the longitudinal axis of the smoking article.

30 As the user starts to withdraw the smoking article from the respective pocket, however, the user is able to perceive any frictional and bending forces that are being applied to the smoking article by the pocket, and generally the user then corrects the direction of the withdrawing force to be aligned with the longitudinal axis of the smoking article.

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In addition, damage caused to smoking articles, by bending forces applied by the respective pocket as a result of the application of the withdrawing force at an angle to the longitudinal axis of the smoking article, has been found to be particularly relevant in the case multi-part smoking articles such as filter cigarettes. The present assembly is arranged to reduce the possibility of damage to such multi-part smoking articles comprising first and second portions, such as a filter rod and a tobacco rod, attached to each other and aligned along a longitudinal axis of the smoking article. Due to the arrangement of the assembly, any bending forces applied to the smoking article as the user starts to withdraw the smoking article are directed away from the position of abutment of the first and second portions and thus the possibility of damage to the smoking article is reduced. Specifically, in the present assembly, a smoking article comprising first and second portions is arranged within a respective pocket so that the first portion of the smoking article extends through the mouth of the pocket and the first end of the smoking article is outside of the pocket. The mouth of the pocket is therefore aligned with a position on the first portion of the smoking article, and therefore any bending forces applied to the smoking article as the user starts to withdraw the smoking article are directed at this position and away from the position of abutment of the first and second portions.

In addition to the relative position of the mouth of the pocket with respect to the respective smoking article, in some embodiments, damage to the smoking article is further reduced by additional features of the assembly. For example, in some embodiments, the smoking article protrudes from the respective pocket by an amount sufficient to ensure that the user can properly grasp the smoking article in order to withdraw it cleanly, in a direction substantially aligned with a longitudinal axis of the smoking article, and is able to perceive any frictional and bending forces that are being applied to the smoking article by the pocket. In some embodiments, the internal diameter of the pockets is substantially the same, or only very slightly larger than the diameter of the smoking article. As a result, the user is quickly able to detect whether the withdrawing force exerted on the smoking article is aligned with a longitudinal axis of the smoking article.

The present assembly, an example of which is shown in Figure 2a, has been found to reduce the possibility of damage to smoking articles, in particular, at the position of abutment of the first and second portions. Figure 2a shows a container 10, which is a hinge-lid cigarette pack 10, containing an assembly according to one

embodiment of the invention. The assembly comprises a support 11 and a plurality of smoking articles, in this case filter tipped cigarettes 1 of the type shown in Figure 1, comprising a filter rod 2 and rod of smokeable material 3. The support 11 comprises a plurality of individual pockets 12, each having a mouth at the top axial end. Some of the
5 pockets 12 contain respective smoking articles 1. Two of the smoking articles 1 are shown as being not fully inserted into their respective pockets 12 of the support 11. The other three smoking articles that are shown in Figure 2a are fully inserted into their respective pockets 12 and therefore protrude from the respective pockets 12 of the support 11 by the same amount.

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Thus, the support 11 comprises a plurality of pockets 12 which are arranged so that when a smoking article 1 is fully inserted into a respective pocket, the first portion of the smoking article 1, which may be a filter 2, extends from inside the pocket 12 through the mouth of the pocket 12A, to protrude from the top of the support 11. In
15 contrast, no part of the second portion 3, which may be a tobacco rod 3, of the smoking article 1 extends through the mouth 12A or protrudes from the top of the pocket 12 of the support 11. The position of abutment 9A between the first and second portions 2, 3 of the smoking article 1 is thus within the pocket 12, positioned below the mouth of the pocket 12A, and thereby protected by the pocket 12 of the support 11, reducing the
20 possibility of damage to the smoking article 1 at this position. Specifically, the possibility of damage to the smoking article 1 at the position of abutment 9A is reduced because the position of the mouth 12A of the pocket 12 with respect to the smoking article 1 is such that if the user withdraws the smoking article 1 at an angle with respect to the longitudinal axis of the smoking article, any lateral strain or bending force
25 applied to the smoking article 1 by the mouth 12A of the pocket 12 is not directed on to the smoking article 1 in the position of abutment 9A. The possibility of damage at the position of abutment 9A may be further reduced because the pocket 12 has an internal diameter only very slightly larger than the diameter of the respective smoking article 1, which quickly repels the user from withdrawing the smoking article at an angle to the
30 longitudinal axis of the smoking article. In addition, because only a relatively small portion of the smoking article 1 protrudes from the pocket 12 of the support, the consumer is induced to withdraw the smoking article 1 substantially in a direction parallel to the longitudinal axis of the pocket 12 and the possibility of applying substantial lateral strain and bending forces on the smoking article 1 by withdrawing
35 the smoking article at an angle to the longitudinal axis of the smoking article is thus reduced.

The assembly is arranged so that when the smoking article 1 is fully inserted into the respective pocket 12 of the support 11, part of the first portion 2 of the smoking article 1 protrudes from the mouth 12A of the pocket 12 but no part of the second
5 portion 3 protrudes from the mouth 12A of the pocket 12. The amount by which the first portion 2 of the smoking article 1 protrudes from the mouth 12A of the pocket 12 may be defined in a number of ways. This distance depends on a number of factors, such as the length and diameter of the first portion 2 of the smoking article 1 to be used with the support 11. Generally, the upper limit of the extent of protrusion of the first
10 portion 2 of the smoking article 1 from the mouth 12A of the pocket 12 is determined by the requirement to ensure that the support 11 protects the position of abutment 9A of the first and second portions 2, 3 of the smoking article 1 and reduces the possibility of lateral stress being placed by the user on the smoking article 1 at the position of the abutment 9A, particularly when the user starts to withdraw the smoking article 1 from
15 the pocket 12 at a significant angle with respect to the longitudinal axis of the smoking article thereby applying a bending force to the smoking article 1 from the mouth 12A of the pocket 12. The position of abutment 9A of the first and second portions 2, 3 of the smoking article 1 is therefore positioned within the pocket 12, sufficiently far below the mouth 12A of the pocket 12, to ensure that no lateral strain or bending forces may be
20 applied to this part of the smoking article.

The lower limit of the extent of protrusion of the first portion 2 of the smoking article 1 from the mouth of the pocket 12 is determined by the requirement to ensure that the consumer can adequately grip the smoking article 1 to ensure smooth
25 withdrawal of the smoking article 1 from the pocket 12. It has been found that when the consumer can grip the smoking article 1 cleanly they are more likely to withdraw the smoking article 1 from the respective pocket 12 in a direction substantially parallel to the longitudinal axis of the smoking article. If the consumer cannot grip the smoking article sufficiently, they may damage the end of the smoking article 9B or place
30 additional lateral strain on the smoking article 1 by withdrawing it at an angle to the longitudinal axis of the smoking article and thereby applying a bending force from mouth 12A of the respective pocket 12 to the smoking article 1. A protrusion of about 10mm of the smoking article from the mouth 12A of the pocket 12 has been found to be the minimum length required for a consumer to cleanly grasp the end of the smoking
35 article 1, and thereby cleanly remove the smoking article from the pocket 12 in a direction substantially parallel to the longitudinal axis of the smoking article.

A protrusion of at least 10mm of the smoking article 1 from the support 11 provides the further advantage that when the container 10 with which the assembly is to be used is full of smoking articles 1, the support 11 is hidden by the protruding smoking articles 1, which appear to be invisibly organised and separated within the container 10.

The protection provided to smoking articles such as filter tipped cigarettes by packs such as cigarette packs is most effective before any of the smoking articles are removed. After removal of one or more smoking articles, the remaining articles are unsupported, and free to move around within the pack. They are therefore vulnerable to damage during transportation and storage. However, the use of the disclosed assembly provides protection to the smoking article 1 and mechanical support to the pack 10 as a whole, and due to the position of the mouth 12A of the pocket 12, and the diameter of the pocket, the present assembly provides an improved packaging for a smoking article that protects the smoking article and reduces damage both during transport and, in particular, as the smoking article 1 is withdrawn from the support 11. Since the pocket 12 of the support 11 fits snugly around the smoking article 1, the assembly also preserves the smoking article 1 for longer in its desired state ready for use, and further reduces the possibility of damage to the smoking article 1 by reducing or preventing the possibility of withdrawal of the smoking article at a significant angle with respect to the longitudinal axis of the smoking article. The cross section of each pocket 12 may have essentially the same dimensions as the cross section of each smoking article 1, and this further reduces damage by preventing at least sideways movement of the smoking article 1 within the pocket 12, for example during transport. This is particularly important as users consume smoking articles less frequently, and therefore transport packs that are only partially filled with smoking articles for a greater length of time, meaning that smoking articles are subjected to an increased level of transport, and in particular, an increased level of transport in incompletely filled packs.

Throughout this specification, any terms relating to the arrangement and dimensions of the disclosed assembly are to be interpreted with reference to any conventional smoking article pack, orientated with the smoking articles aligned vertically. For example, the pack may be a hinge-lid smoking article pack positioned with the hinge-lid at the top, hinged at the back, as shown in Figure 2a. Thus, when the

container with which the assembly is used is a hinge-lid smoking article pack, the assembly is to be considered to be arranged within the hinge-lid pack 10 with the pocket 12 and the associated smoking article 1 extending vertically, and with the first portion 2 of the smoking article 1 protruding from the top of the pocket 12, as shown in
5 Figure 2a. References to the extent of protrusion of the smoking article 1 are to be interpreted on the basis of a smoking article that is fully inserted into the pocket 12 of the support 11, with the end 9C of the smoking article 1 in contact with the bottom of the container 10 in which the assembly is being used.

10 Figure 2b shows in more detail part of the assembly shown in Figure 2a. The support 11 is arranged so that part of the filter rod 2, but no part of the rod of smokeable material 3, of the smoking article 1, protrudes from the mouth 12A of the respective pocket 12. Thus, the position of abutment 9A of the filter rod 2 and rod of smokeable material 3 of each cigarette 1 is within the respective pocket 12.

15 As shown in Figure 2b, the support 11 has a top 11A, which is the position of the mouth 12A of the pocket 12, and a bottom 11B. The smoking article 1 is positioned within the pocket 12 so that the filter rod 2 extends from within the pocket 12 through the mouth of the pocket 12A at the top of the support 11A. The top of the support 11A,
20 which is the position of the mouth 12A of the pocket 12, is therefore a distance X above the position of the abutment 9A between the filter rod 2 and the rod of smokeable material 3 of the cigarette 1. In the embodiment shown in Figures 2a and 2b, the distance X is about 5mm. This distance, which is slightly less than the diameter of the “regular” cigarette, which is about 7.6mm, has been found to reduce damage to the
25 smoking article 1 at the position of the abutment 9A, which may be caused, for example, by the user withdrawing the smoking article 1 at an angle to the longitudinal axis of the smoking article and thereby applying a bending force to the smoking article 1 from the mouth 12A of the pocket 12.

30 A length Y of the rod of smokeable material 3 of the smoking article 1 is within the pocket 12. In the embodiment shown in Figures 2a and 2b, the length Y is about 20mm. This length has been found to be a preferred minimum length for sufficiently holding and supporting the smoking article 1, and for reducing damage at the position of abutment 9A between the filter 2 and rod of smokeable material 3 which may be
35 caused, for example, by the user withdrawing the smoking article 1 at an angle to the

longitudinal axis of the smoking article and thereby applying a bending force to the smoking article 1 from the mouth 12A of the pocket 12.

Referring back to Figure 2a, the top of the support 11 is flat, in that all of the
5 mouths 12A of all of the pockets 12 are aligned, and thus the top of the support 11 describes a plane that is substantially parallel to the base of the pack 10. Therefore, when fully inserted into the pack, all of the cigarettes 1 protrude from the top of the support 11 by the same amount.

10 In the embodiment shown in Figure 2a, the hinge-lid pack 10 comprises an inner frame 13, having an opening 14, which is a region of reduced height at the front of the pack to assist removal of smoking articles 1 from the pack. The top of the support 11 is below the lowest point of the opening 14 of the inner frame 13. In a preferred embodiment, the support 11 comprises 20 pockets arranged in three rows, wherein the
15 first and third rows (i.e. front and back rows) contain 7 pockets and the second row (i.e. middle row) contains 6 pockets. Any other number and arrangement of pockets may instead be used in other embodiments.

Figure 3 shows an example of an assembly of the present invention comprising
20 smoking articles 1, comprising a filter portion 2 and a rod of smokeable material 3, and a support 15 having a plurality of individual pockets 16. The support 15 differs from that of Figure 2a in that it comprises only one row of pockets 16. The length of each pocket 16 is such that the smokeable material end 9C of each smoking article 1 does not protrude from the bottom of its respective pocket 16, and is substantially aligned with
25 the bottom of its respective pocket 16.

The support 15 is formed from a first support member 17 and a second support member 18, which in this case are grooved webs composed of a thin card material. Both of the first and second support members 17, 18 comprise a series of parallel channels
30 19, 20 having cross sections that are approximately sinusoidal. The first and second support members 17, 18 are relatively positioned so that the channels 19 of the first support member 17 align and face the channels 20 of the second support member 18, the channels 19, 20 together forming a series of parallel individual cavities or pockets 16, each one shaped to receive and contain a single smoking article 1. Each pocket 16
35 has a mouth 16A at an axial end. All of the channels of the two support members are equally spaced and equally shaped. The areas 22 of the support members 17, 18

between each channel 19, 20 may be viewed as ridges, and in these positions the two support members may be bonded together, for example, using an adhesive.

5 The smoking articles 1 comprise a filter rod 2 and a rod of smokeable material 3 and the support 15 is arranged so that part of the filter rod 2, but no part of the rod of smokeable material 3, of each smoking article 1, extends through the mouth 16A from within the respective pocket 16. The filter end 9B of each smoking article 1 is outside of the respective pocket 16. Thus, the position of abutment 9A of the filter rod 2 and rod of smokeable material 3 of each smoking article 1 is within its respective pocket 16, and in
10 the example shown, is about 6mm below and away from the position of the mouth 16A of the pockets 16.

Assemblies of the type shown in Figure 3 can be produced in long strips, optionally in a continuous process. These strips can then be cut to size and/or folded to
15 be to be used in a pack. In embodiments in which the strips are cut to size, they may be cut in the bonded areas 22 of the support members. Alternatively, they may be cut in the position of a pocket(s) 16, and in this case, the pockets 16 in the position(s) to be cut do not contain a smoking article 1.

20 Figures 4a and b show how the assembly of Figure 3 may be modified. In Figure 4a is shown a support 150 comprising a plurality of individual pockets 161A-G, 162A-F, 163A-G. Figure 4b is a diagram of the support shown in Figure 4a. The support 150 is formed from a plurality of support members in the form of grooved webs, comprising thin corrugated card material. Specifically, the support comprises a first web 171, a
25 second web 172, a third web 173, and a fourth web 174. All of the webs have a series of parallel grooves 191A-G and ridges 221A-F, wherein the grooves and ridges are are formed by the corrugations of the grooved webs and are present in an alternating sequence. Thus, on one face of each support member there is a sequence of alternating parallel grooves and ridges and on the opposite face of the same support member there
30 is a similar sequence of parallel grooves and ridges, wherein the grooves on one face provide the ridges of the opposite face, and vice-versa. The grooves on one face are aligned parallel to, and are interspaced between, the grooves of the opposite face. In the embodiment shown, each of the grooves 191A-G and ridges 221A-F has a cross section that is approximately sinusoidal.

The first and second webs 171, 172 are relatively positioned so that grooves 191A-G of the first web 171 align and face the grooves 201A-G of the second web 172. Respective pairs of the grooves 191A-G of the first web 171 and grooves 201A-G of the second web 172 together form a first row or series of parallel individual pockets 161A-G having an approximately hexagonal cross section, each pocket 161A-G shaped to receive and contain a single smoking article 1. The first and second webs 171, 172 are bonded at the points of contact 231A-F between the grooves.

The ridges of the second web 172, formed between each of the grooves 201A-G, provide on the opposite face of the second web 172 a further series of parallel grooves 192A-F. The second and third webs 172, 173 are relatively positioned so that grooves 192A-F of the second web 172 align and face the grooves 202A-F of the third web 173. Respective pairs of the grooves 192A-F of the second web 172 and the grooves 202A-F of the third web 173 together form a second series of parallel individual pockets 162A-F.

The ridges of the third web 173, formed in alternating sequence with each of the grooves 202A-F, provide on the opposite face of the third web 173 a further series of parallel grooves 193A-G. The second and third webs 172, 173 are relatively positioned so that grooves 193A-G of the third web 173 align and face the grooves 203A-G of the fourth web 174. Respective pairs of the grooves 193A-G of the third web 173 and the grooves 203A-G of the fourth web 174 together form a third series of parallel individual pockets 163A-G.

Thus, in total, the support 150 comprises four support members 171-174 which are arranged to provide 20 pockets. The support members are arranged to provide a first row of pockets, having 7 pockets 161A-G, formed between the first and second support members 171, 172, a second row of pockets, having 6 pockets 162A-F, formed between the second and third support members 172, 173, and a third row of pockets, having 7 pockets 163A-G, formed between the third and fourth support members 173, 174.

It will be appreciated from Figures 4a and b, and the associated description, that each additional grooved web that is added to the support 150 forms an additional row of pockets. As shown in Figures 4a and b, the support is therefore arranged with the webs extending in a direction parallel to the longest lateral dimension of the support 150. This arrangement minimises the number of separate webs and bonding

operations that are required to produce a support of any given shape, cross-sectional area, or pocket number.

In the embodiment of Figure 4a and b, the grooved webs from which the
5 support members are formed are substantially identical, and all of the grooves of all of the webs 171, 172, 173, 174 are equally spaced and equally shaped. As a result, all of the pockets in the support 150 have the same cross-sectional shape and area, each one shaped to receive and closely contain a single smoking article 1. Moreover, the support 150 is sized and arranged such that the position of abutment of the filter rod and rod of
10 smokeable material of each cigarette 1 is within the respective pocket of the support 150, and part of the filter rod, but no part of the rod of smokeable material, of the smoking articles 1, extends through the mouth of the respective pockets.

As a result of the method of production of the support, in which successive
15 support members 171, 172 are bonded to form a honeycomb-like structure, the majority of the pockets may have an approximately hexagonal cross-section.

In addition, as shown in Figure 5a, at the end of the support members 181A-F, bonding together of the lateral extensions 23 of the support members 181A-F produces
20 a plurality of substantially semi-hexagonal grooves 241 at the sides of the support 151. The size of these grooves 241 may be determined by the degree of extension (size) of the bonded lateral extensions 23 at the end of the support members 181A-F.

In some embodiments, such as that shown in Figure 5a, the size of the semi-
25 hexagonal grooves or gaps 241 at the sides of the support 151 are too small to accommodate a smoking article 1. As a result, all of the pockets of the support 151 that are suitable for accommodating a smoking article are entirely formed between two adjacent support members 181A-F, and the complete circumferences of all of the smoking articles 1 are entirely encompassed by adjacent pairs of support members
30 181A-F.

In other embodiments, however, such as that shown in Figure 5b, the lateral extensions 23 of the support members 182A-F are sufficiently long that the semi-hexagonal grooves or gaps 242 at the sides of the support 152 are large enough to
35 accommodate a smoking article 1. Thus, some of the smoking articles are held by a

combination of two adjacent support members and the wall of the container 25 in which the support is used.

As shown in Figure 5b, the pockets 242 formed by the support 152 and by a
5 portion of the container wall 25 are preferably found only along the shorter sides 25A, 25C of the container 25, and not along the longer sides of the container 25B, 25D.

Even though some of the pockets 242 of a support 152 may be formed by a combination of two adjacent support members and a wall of the container in which the
10 support is to be used, it is the support specifically (i.e. formed only by the support members) which defines the position of the mouth of the pockets and therefore determines the degree of protrusion of the smoking articles from the pockets of the support.

15 The arrangement of the support 151 shown Figure 5a has the advantage over the arrangement of the support 152 shown in Figure 5b that the support 151 provides significantly more mechanical support to the container 25. In addition, the smoking articles 1 at either end of the support 151 shown Figure 5a are more robustly protected than the smoking articles 1 at either end of the support 152 shown in Figure 5b because
20 all of the smoking articles 1 are entirely circumferentially enclosed by the support members.

The arrangement of the support 152 shown Figure 5b has the advantage that, compared to the arrangement of the support 151 shown in Figure 5a, the support 152 is
25 smaller and constructed from less material. In addition, the container 25 can also be made smaller, further saving on materials, and therefore reducing manufacturing cost.

Figures 6a-6g show methods in which an assembly according to one embodiment of the invention may be prepared and how smoking articles may be
30 positioned in the individual pockets of a support to form the assembly.

Figure 6a is a diagram showing various steps in the manufacture of an assembly of the invention. The assembly comprises a support 150 and smoking articles 1. The support 150 is formed from a plurality of support members in the form of grooved
35 webs, each composed of thin corrugated card material. Specifically, the support 150 comprises a first grooved web 261, a second grooved web 262, a third grooved web 263,

a fourth grooved web 264, a fifth grooved web 265, and a sixth grooved web 266. Smoking articles 1 are fed by rollers 281, 282, 283, 284, 285 into the grooves of the first, second, third, fourth, and fifth webs 261, 262, 263, 264, 265. Each web is sequentially loaded with smoking articles and then aligned with and adhered to the preceding neighbouring web. Thus, the first, second, third, fourth, fifth, and sixth webs 261, 262, 263, 264, 265, 266 are arranged so as to provide a support 150 comprising a series of individual pockets each containing a smoking article 1. In the embodiment shown, smoking articles 1 are not inserted into every pocket in order to provide positions at which completed assemblies may be cleaved.

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Figure 6b shows, in more detail, one of the rollers 281, which inserts smoking articles 1 into the grooves of one of the webs 261. The roller 281 precisely aligns the smoking articles 1 within respective grooves 271 in the web 261 so that the position of abutment 9A between the first and second coaxially attached sections 2, 3 of each of the smoking articles 1 is correctly positioned within the resulting support 150, as shown in Figure 6c.

15

Figure 6c shows the complete assembly comprising support 150 and smoking articles 1. The support 150 comprises 5 rows and 7 columns of pockets 12, each pocket having a substantially hexagonal cross section. The smoking articles 1 are positioned within the support 150 so that the position of abutment 9A of the filter 2 and rod of smokeable material 3 of each smoking article 1 is within the respective pocket 12, the filter 2 of each smoking article extends through the mouth from within the respective pocket 12, and the top 9B of the smoking article 1 is outside of the pocket 12 of the support 150. In the embodiment shown, about 5mm of the filter 2 of each smoking article 1 is within the respective pocket 12 of the support 150, and the remainder of the filter 2 is outside of the pocket 12. In the embodiment shown, each pocket 12 of the support 150 has a length of about 25mm (in the direction of the extension of the pockets), and the rods of smokeable material 3 of the smoking articles 1 therefore protrude from the bottom of the respective pocket 12. In other embodiments, the pockets 12 may be longer. For example, in embodiments in which each pocket 12 is arranged so that the rod of smokeable material 3 of the smoking article 1 protrude from the bottom of the respective pocket 12, the length of the pocket may be 25-60mm, 30-55mm, 35-50mm, or 40-45mm.

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Figure 6d shows an alternative process for preparing a support 150. The resulting support 150 resembles that shown in Figure 6c. The support shown in Figure 6d is made up of six support members, specifically a first grooved web 321, a second grooved web 322, a third grooved web 323, a fourth grooved web 324, a fifth grooved web 325, and a sixth grooved web 326. The first, second, third, fourth, fifth, and sixth webs 321, 322, 323, 324, 325, 326 are sequentially arranged and bonded so that the grooves of each web align and face each other providing a series of parallel individual pockets 33 having an approximately hexagonal cross section. After assembly of the support 150, a smoking article 1 is inserted into each individual pocket 33. Insertion of the smoking articles 1 may occur before or after cleavage of the support 150.

A limiter and/or a positioner (not shown) is provided for limiting the extent to which the smoking articles 1 are inserted into the pockets 33, and/or for adjusting the position of the smoking articles 1 within the pockets 33 to ensure that the smoking articles 1 are inserted into the support 150 to the correct extent to ensure that the position of abutment 9A of the filter 2 and rod of smokeable material 3 of each smoking article 1 is positioned precisely as required within the respective pocket 12.

Figures 7a-d indicate a method by which the assembly shown in Figure 6c, comprising support 150 and smoking articles 1, may be incorporated into a pack 10 such as, but not limited to, a cigarette pack.

As shown in Figure 7a, in a first step, strips of adhesive 34 are applied to the foremost faces of the support 150. The assembly is then wrapped in a wrapper 35, which may be a foil wrapper, as shown in Figure 7b. The adhesive thus bonds the support 150 to the wrapper 35, to ensure that the support 150 is held in position within the wrapper 35. The wrapper 35 may maintain the freshness of the smoking articles 1. The wrapper 35 also functions to hold the smoking articles 1 in position within the support 150 during the remaining manufacturing operations.

As shown in Figure 7c, the pack 10 is formed of a flat piece of material 36 such as, but not limited to, card. The material 36 is shaped so that it can be folded to encompass the wrapped assembly 35. Prior to folding of the card 36, adhesive 37 is applied to the wrapper 35, to ensure that the wrapped assembly 35 is held in position during the folding of the material 36, and in the resulting container.

The final pack 10 comprising the wrapped assembly 35 (not shown) within the container formed from the folded material 36 is shown in Figure 7d.

In order to address various issues and advance the art, the entirety of this
5 disclosure shows by way of illustration various embodiments in which the claimed
invention(s) may be practiced and provide for superior assemblies comprising smoking
articles and methods for manufacturing such assemblies. The advantages and features
of the disclosure are of a representative sample of embodiments only, and are not
exhaustive and/or exclusive. They are presented only to assist in understanding and
10 teach the claimed features. It is to be understood that advantages, embodiments,
examples, functions, features, structures, and/or other aspects of the disclosure are not
to be considered limitations on the disclosure as defined by the claims or limitations on
equivalents to the claims, and that other embodiments may be utilised and
modifications may be made without departing from the scope and/or spirit of the
15 disclosure. Various embodiments may suitably comprise, consist of, or consist
essentially of, various combinations of the disclosed elements, components, features,
parts, steps, means, etc. In addition, the disclosure includes other inventions not
presently claimed, but which may be claimed in future.

Claims

1. An assembly, comprising:
a support having a first support member comprising a first channel, and a
5 second support member comprising a second channel, wherein the first and second
support members are relatively positioned so that the first and second channels
together form a pocket having a mouth at an axial end of the pocket; and,
a smoking article having first and second portions attached to each other and
aligned along a longitudinal axis of the smoking article so that the first portion defines
10 a first end of the smoking article;
wherein the smoking article is arranged within the pocket so that the first
portion of the smoking article extends through the mouth from within the pocket and
the first end of the smoking article is outside of the pocket.
- 15 2. An assembly as claimed in claim 1, wherein the first end of the smoking article is
at least 10mm from the mouth of the pocket.
3. An assembly as claimed in any one of the preceding claims, wherein at least part
of the second portion of the smoking article is within the pocket.
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4. An assembly as claimed in any one of the preceding claims, wherein the mouth
is free of the second portion of the smoking article.
5. An assembly as claimed in any one of the preceding claims, wherein the second
25 portion of the smoking article is at least 5mm from the mouth of the pocket.
6. An assembly as claimed in any one of the preceding claims, wherein the second
portion of the smoking article is a distance from the mouth of the pocket that is equal to
or greater than a width of the smoking article perpendicular to the longitudinal axis of
30 the smoking article.
7. An assembly as claimed in any one of the preceding claims, wherein the second
portion of the smoking article is a distance from the mouth of the pocket that is at least
7% of the total length of the smoking article.
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8. An assembly as claimed in any one of the preceding claims, wherein the pocket comprises a second mouth at a second axial end of the pocket.
9. An assembly as claimed in claim 8, wherein the second portion of the smoking
5 article extends through the second mouth from within the pocket.
10. An assembly as claimed in claim 8, wherein the second portion of the smoking article defines a second end of the smoking article which is positioned at the second mouth of the pocket.
11. An assembly as claimed in any one of the preceding claims, wherein the mouth is perpendicular to a longitudinal axis of the smoking article.
12. An assembly as claimed in any one of the preceding claims, wherein the length
15 of the pocket is greater than 25mm.
13. An assembly as claimed in any one of the preceding claims, wherein the length of the pocket is greater than one third of the length of the smoking article.
14. An assembly as claimed in any one of the preceding claims, wherein the pocket
20 has a minimum width perpendicular to a longitudinal axis of the pocket that is less than 110% of a width of the smoking article perpendicular to the longitudinal axis of the smoking article.
15. An assembly as claimed in any one of the preceding claims, wherein the first
25 and second support members comprise first and second grooved webs, and wherein the first channel of the first support member is provided by a first groove in the first grooved web, and the second channel of the second support member is provided by a second groove in the second grooved web.
16. An assembly as claimed in any one of the preceding claims, wherein the first
30 and second support members are substantially identical.
17. An assembly as claimed in any one of the preceding claims, wherein each of the
35 first and second channels has a sinusoidal cross section perpendicular to a longitudinal axis of the pocket.

18. An assembly as claimed in any one of claims 1-16, wherein the pocket has a polygonal cross section perpendicular to a longitudinal axis of the pocket.

5 19. An assembly as claimed in any one of the preceding claims, wherein the support members are bonded together.

20. An assembly as claimed in any one of the preceding claims, wherein the first portion of the smoking article comprises a filter, and the second portion of the smoking
10 article comprises a rod of smokable material.

21. An assembly as claimed in any one of the preceding claims, wherein the support comprises a plurality of pockets.

15 22. An assembly as claimed in claim 21, wherein the first support member comprises plural first channels, the second support member comprises plural second channels, and the first and second support members are relatively positioned so that respective pairs of the plural first channels and plural second channels together form a row of respective pockets.

20 23. An assembly as claimed in claim 22, wherein each of the first and second support members comprises a corrugated sheet comprising a front face and a rear face, wherein the front face comprises a plurality of front face channels, and wherein the rear face comprises a plurality of rear face channels, wherein the plural front face channels
25 are aligned parallel to, and are interspaced between, the plural rear face channels, and wherein the first and second support members are relatively positioned so that respective pairs of the plural rear face channels of the first support member and plural front face channels of the second support member together form a row of respective pockets.

30 24. An assembly as claimed in claim 23, wherein the support further comprises a third support member comprising a corrugated sheet comprising a front face and a rear face, wherein the front face of the corrugated sheet of the third support member comprises a plurality of front face channels, and wherein the rear face of the corrugated
35 sheet of the third support member comprises a plurality of rear face channels, and the second and third support members are relatively positioned so that respective pairs of

the plural rear face channels of the second support member and plural front face channels of the third support member together form a second row of respective pockets.

5 25. An assembly as claimed in claim 24, wherein the support comprises further support members, each further support member comprising a corrugated sheet comprising a front face and a rear face, wherein the front face of the corrugated sheet of the further support member comprises a plurality of front face channels, and wherein
10 the rear face of the corrugated sheet of the further support member comprises a plurality of rear face channels, and wherein each further support member is relatively positioned with respect to an adjacent one of the support members so that respective pairs of the plural front face channels of the further support member and plural rear face channels of the adjacent support member together form a further row of respective
15 pockets.

15 26. An assembly as claimed in claim 25, wherein the support comprises four support members, and wherein the support members are arranged to provide a row of seven pockets between the first and second support members, a row of six pockets between the second and third support members, and a row of seven pockets between
20 the third and fourth support members.

27. An assembly as claimed in any one of claims 21-26, wherein substantially identical smoking articles are arranged in the respective pockets, and equal proportions of the smoking articles extend through the mouths of the respective pockets.

25 28. A pack comprising an assembly according to any one of the preceding claims and a container containing the assembly.

29. A pack comprising an assembly according to any one of claims 21-27 and a
30 container containing the assembly, wherein all of the pockets are formed between adjacent support members and are substantially identical in size, shape and structure.

30. A pack comprising an assembly according to any one of claims 21-27 and a
35 container containing the assembly, wherein one or more of the pockets is formed between one or more of the support members and one or more walls of the container.

31. A pack as claimed in any one of claims 28-30, wherein the container is a hinge-lid pack having a longitudinal axis, wherein the assembly is arranged in the hinge-lid pack with the smoking articles extending in respective directions parallel to the longitudinal axis of the hinge-lid pack, and wherein an end of the support comprising the mouth of the pocket is arranged at an openable end of the hinge-lid pack.

32. A pack as claimed in claim 31, wherein the end of the support comprising the mouth of the pocket is flat and describes a plane that is perpendicular to a longitudinal axis of the pocket.

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33. A pack as claimed in either one of claims 31-32, wherein the hinge-lid pack comprises a body having an inner frame, wherein the inner frame comprises an opening, and wherein the support is arranged within the inner frame so that the end of the support comprising the mouth of the pocket is further inside the body than any part of the opening of the inner frame.

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34. A method of manufacturing an assembly as claimed in any one of claims 1-27, the method comprising:

- a) providing a first support member comprising a first channel having a first end, a second support member comprising a second channel having a second end, and a smoking article having first and second portions attached to each other and aligned along a longitudinal axis of the smoking article so that the first portion defines a first end of the smoking article; and,
- b) relatively arranging the smoking article, the first support member, and the second support member, so that the first and second channels together form a pocket, the first and second ends of the first and second channels form a mouth of the pocket, and the smoking article is arranged within the pocket so that the first portion of the smoking article extends through the mouth from within the pocket and the first end of the smoking article is outside of the pocket.

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35. A method of manufacturing an assembly as claimed in claim 34, the method comprising:

- 1) relatively arranging the smoking article and the first channel of the first support member so that the first portion of the smoking article extends from within the first channel through the first end of the first channel, and so that the first end of the smoking article is outside of the first channel; and

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2) positioning the second support member relative to the first support member and the smoking article, so that the first and second channels together form the pocket and the smoking article is arranged in the pocket.

5 36. A method of manufacturing an assembly as claimed in claim 34, the method comprising:

- 1) relatively positioning the first and second support members so that the first and second channels together form a pocket having a mouth at an axial end of the pocket defined by the first and second ends of the first and second channels of the support
- 10 members; and,
- 2) relatively positioning the pocket and the smoking article so that the first portion of the smoking article extends through the mouth from within the pocket and the first end of the smoking article is outside of the pocket.

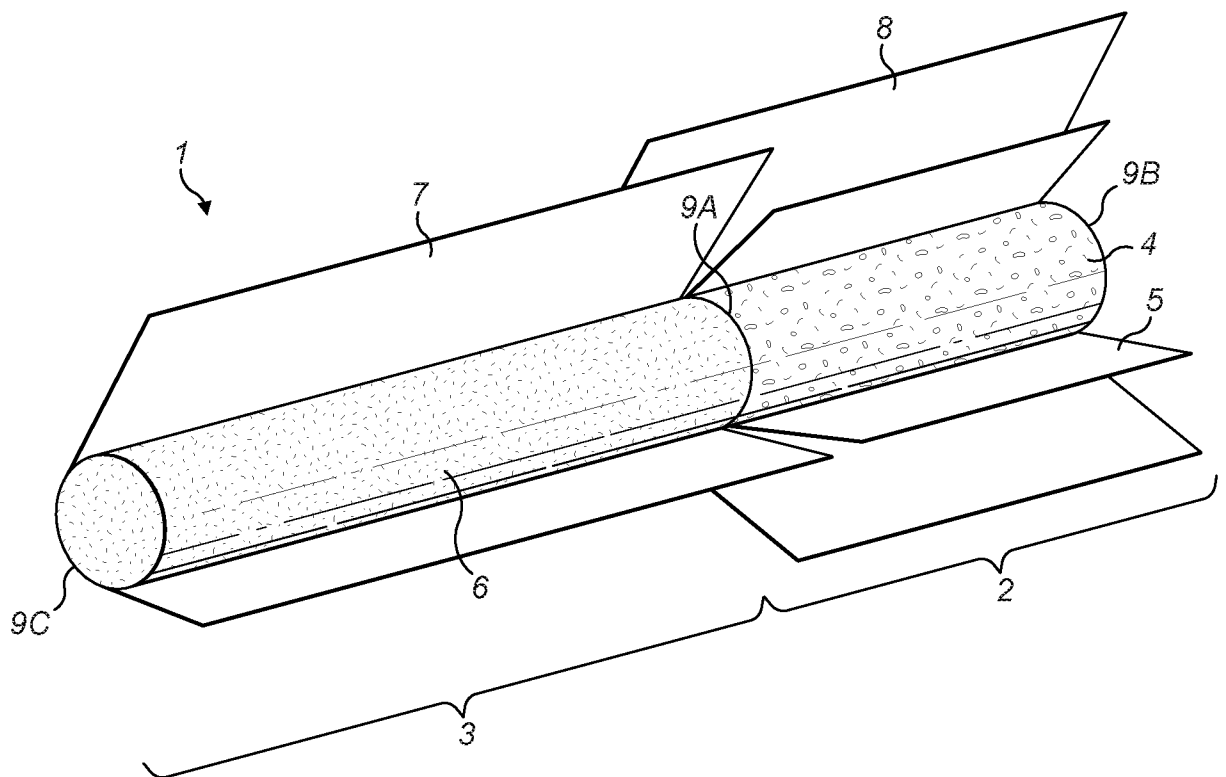


FIG. 1

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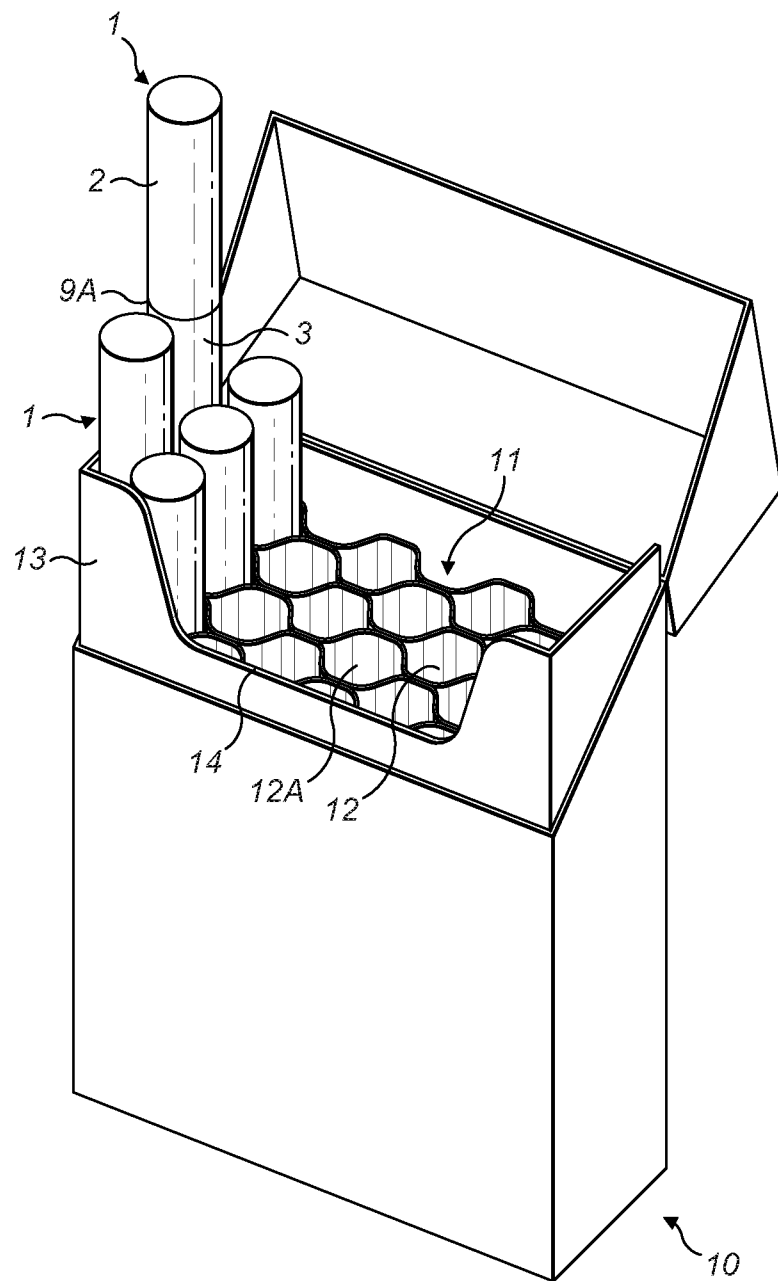


FIG. 2a

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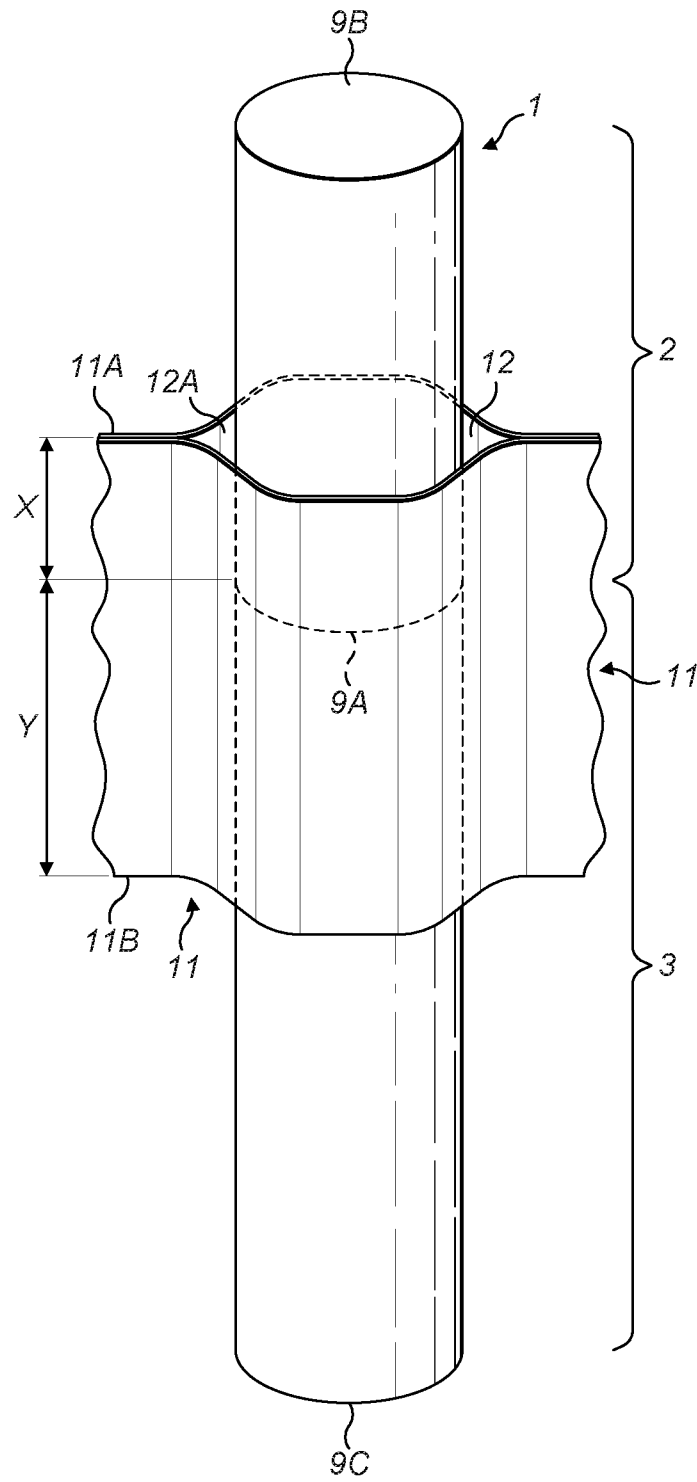
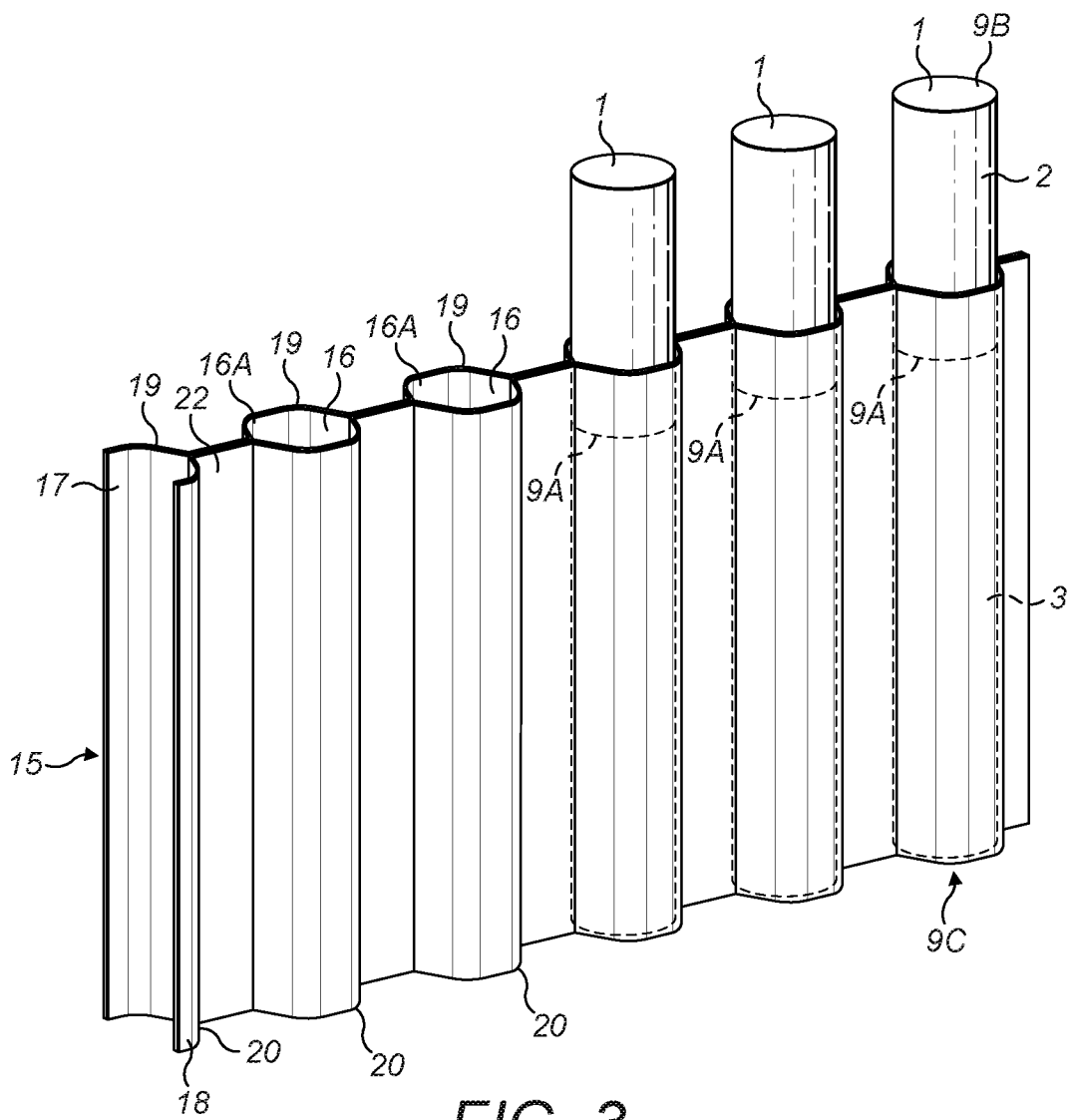


FIG. 2b



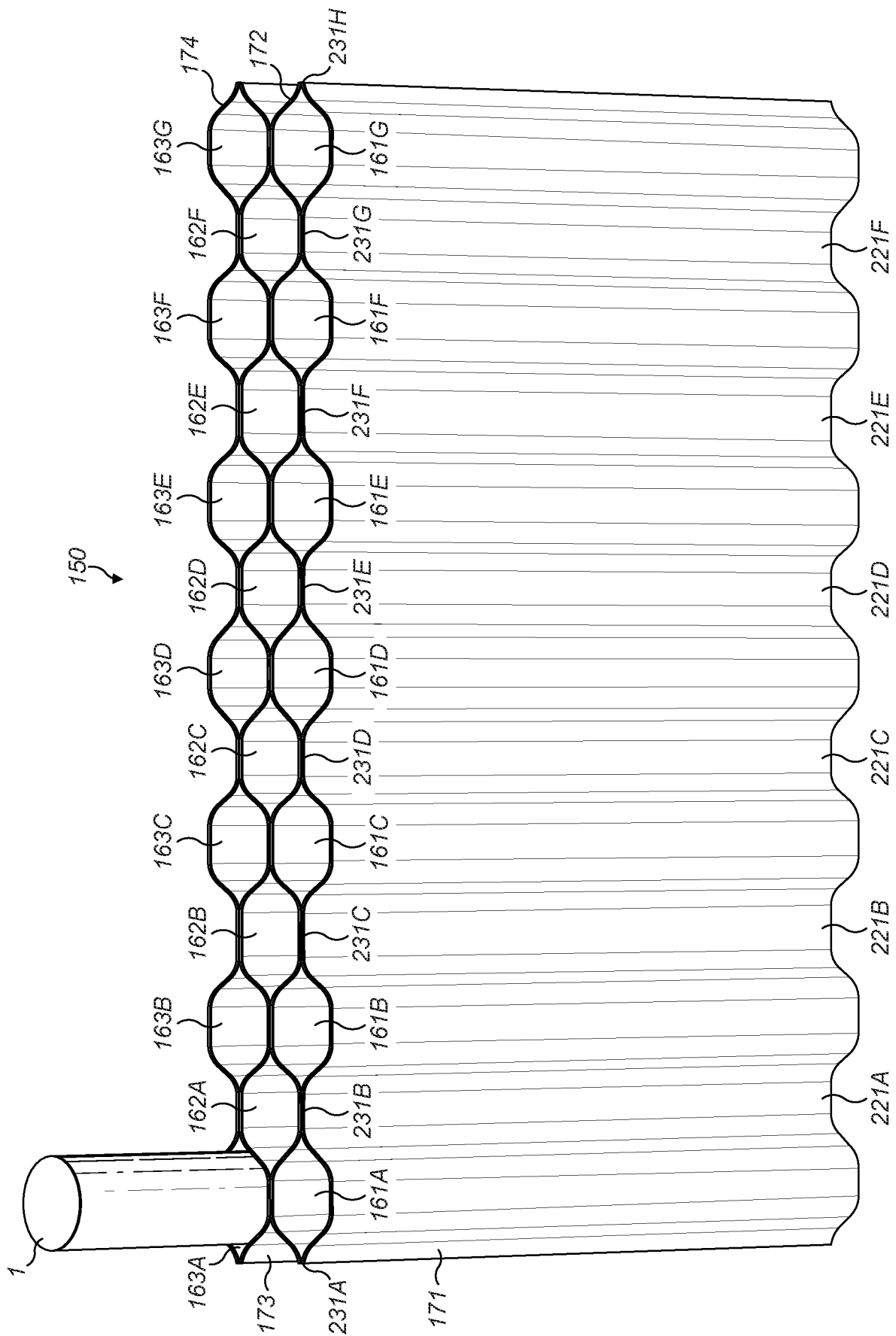


FIG. 4a

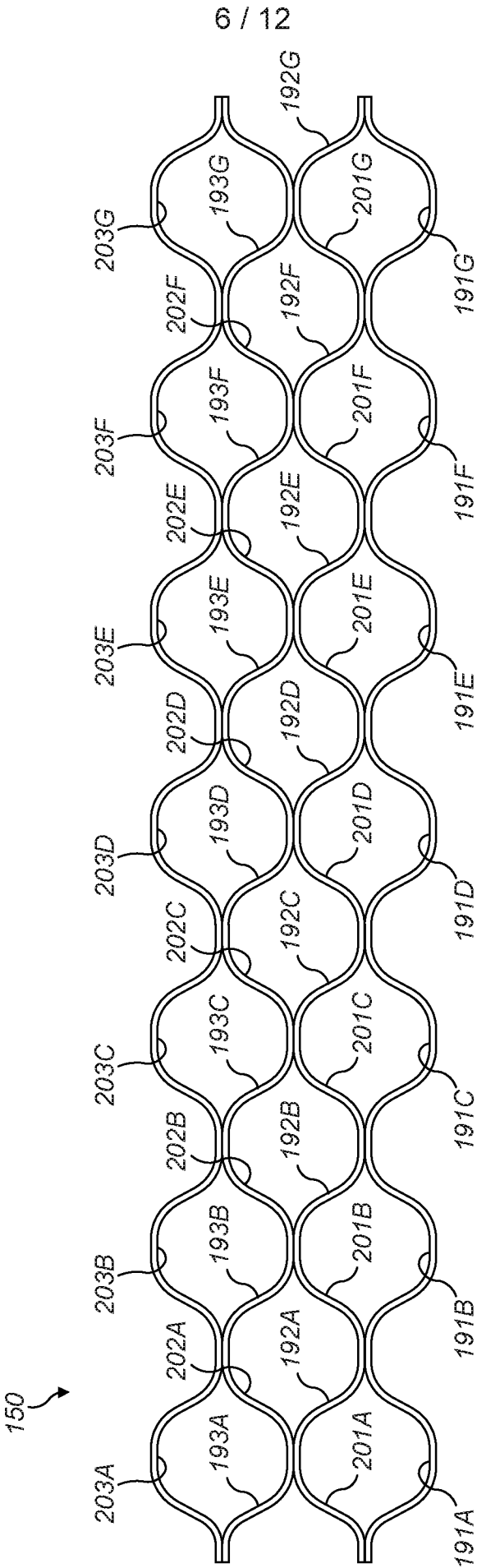
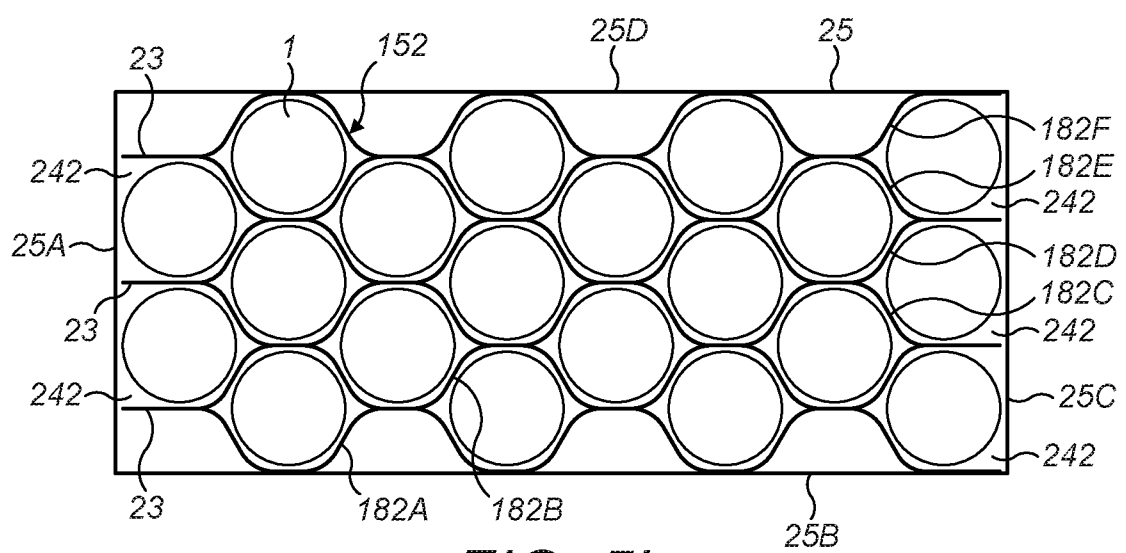
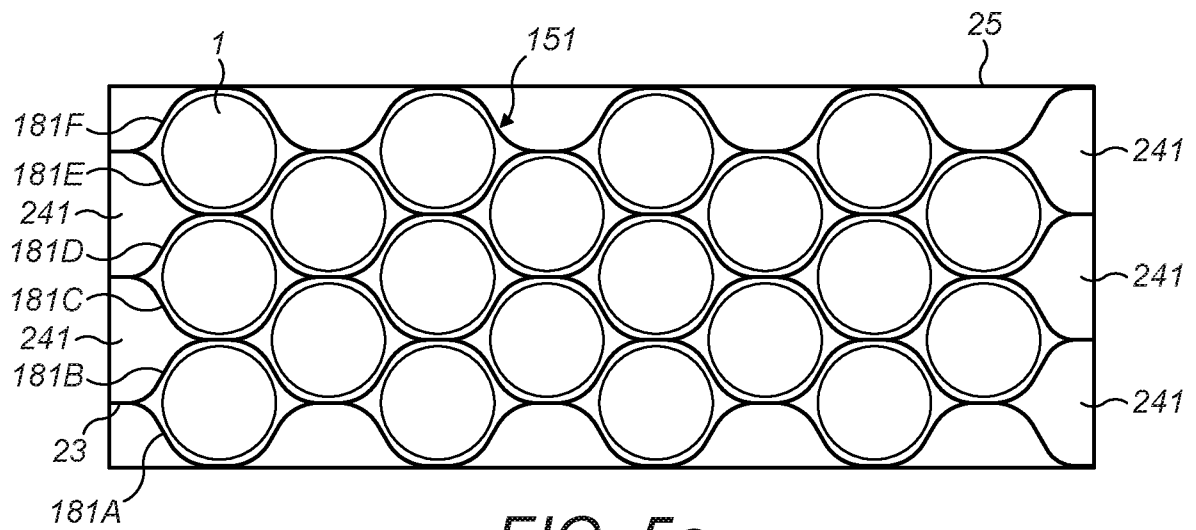


FIG. 4b



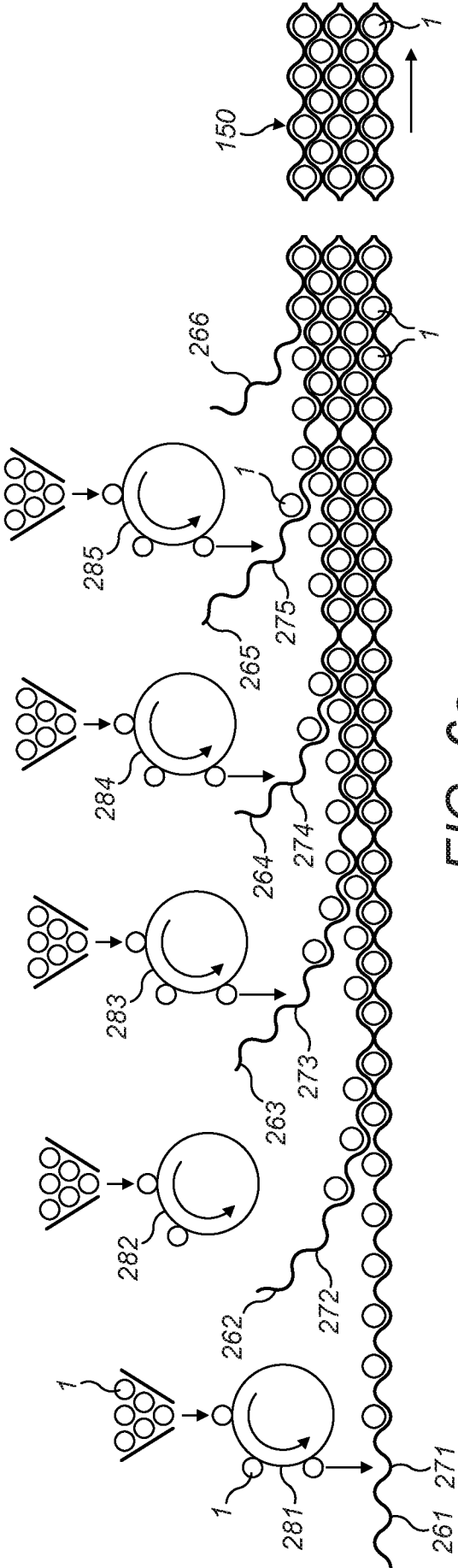


FIG. 6a

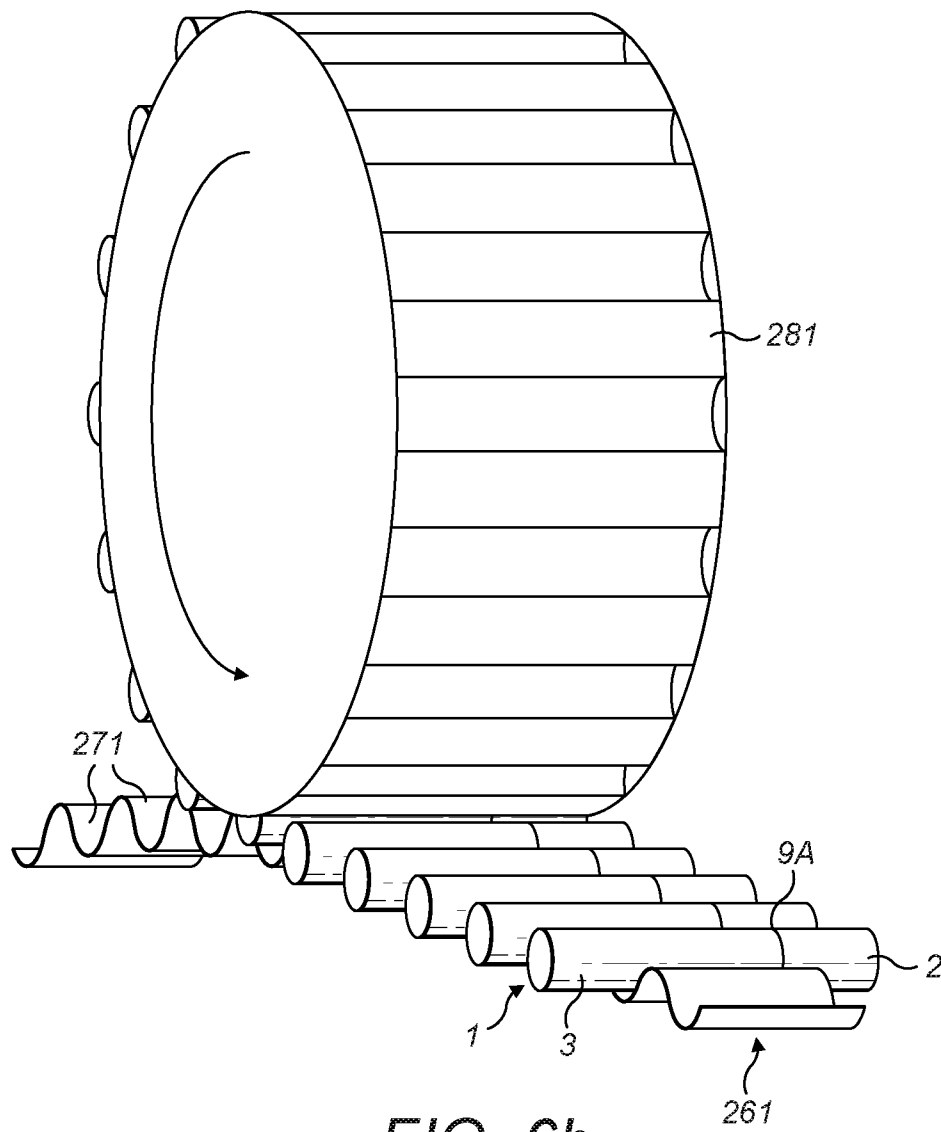


FIG. 6b

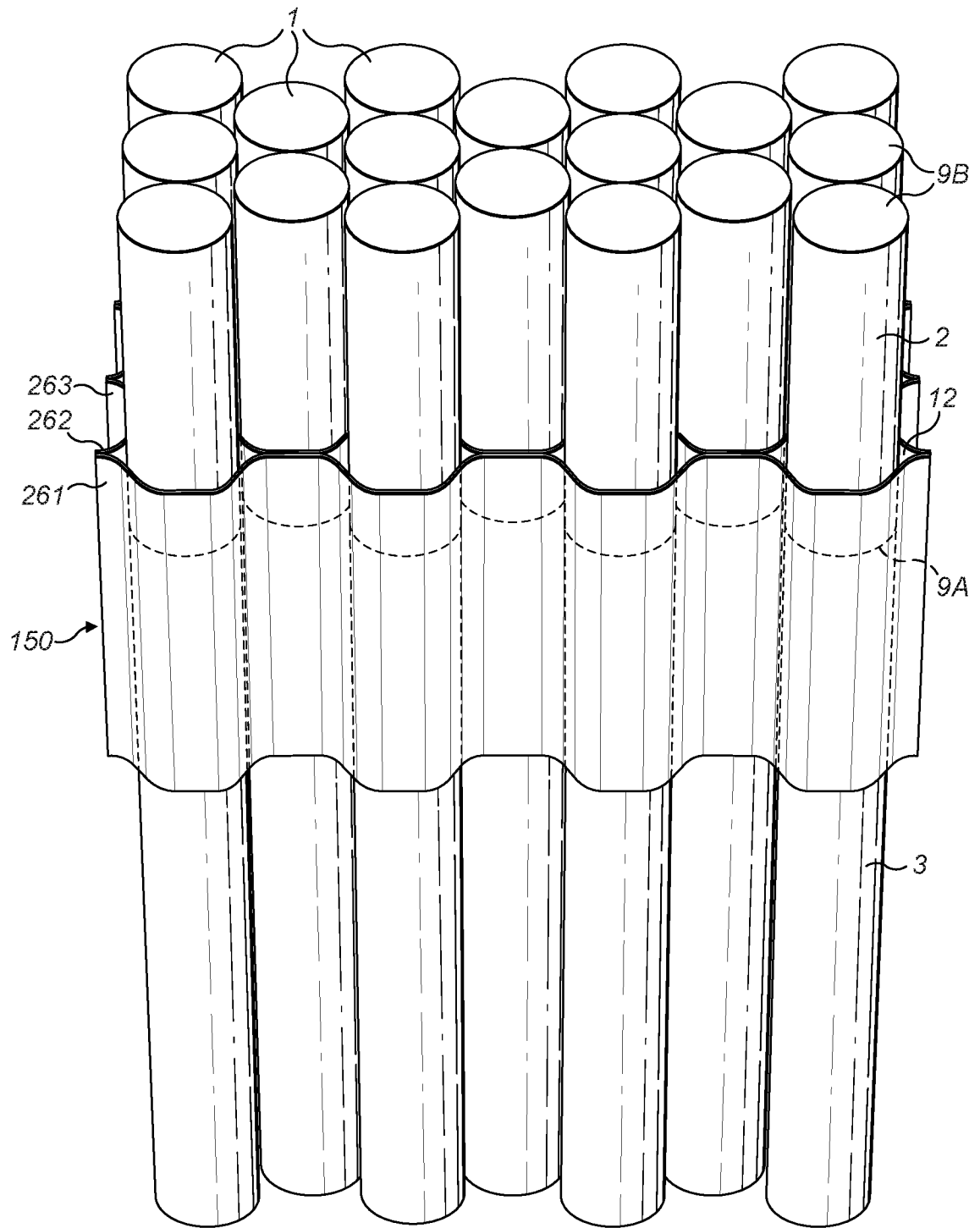


FIG. 6c

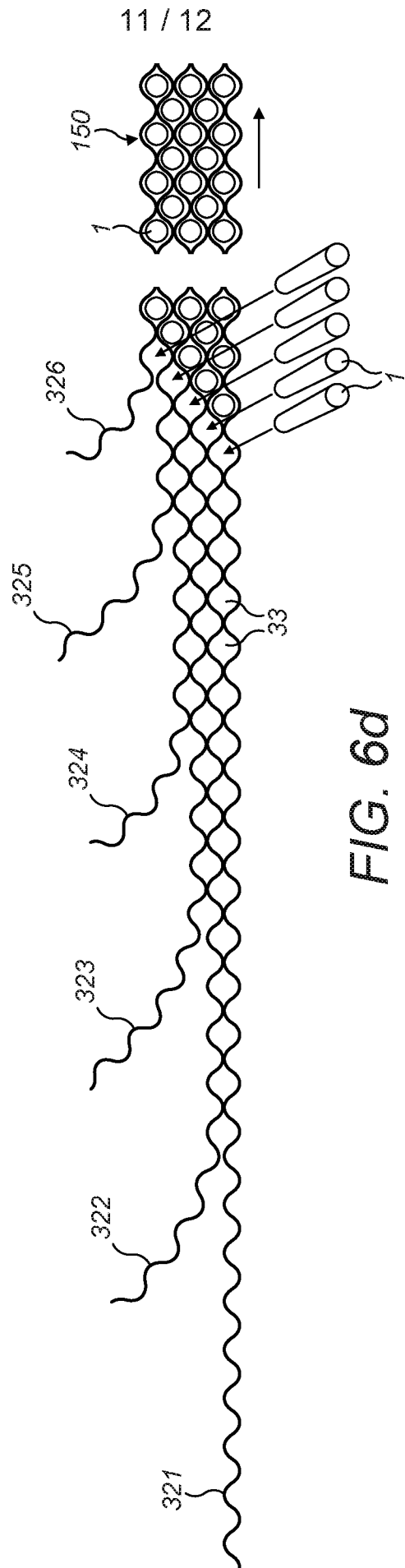
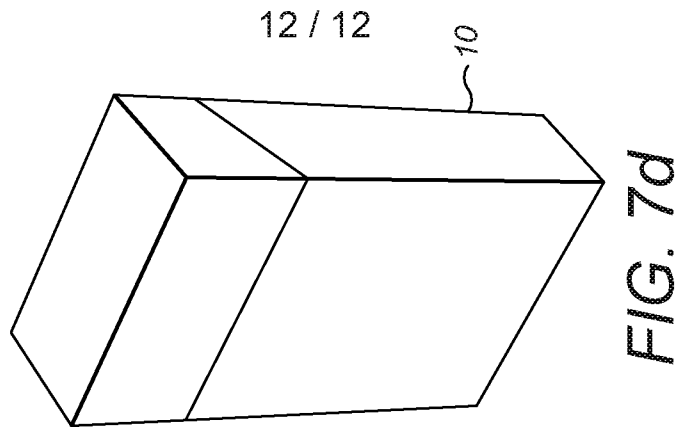
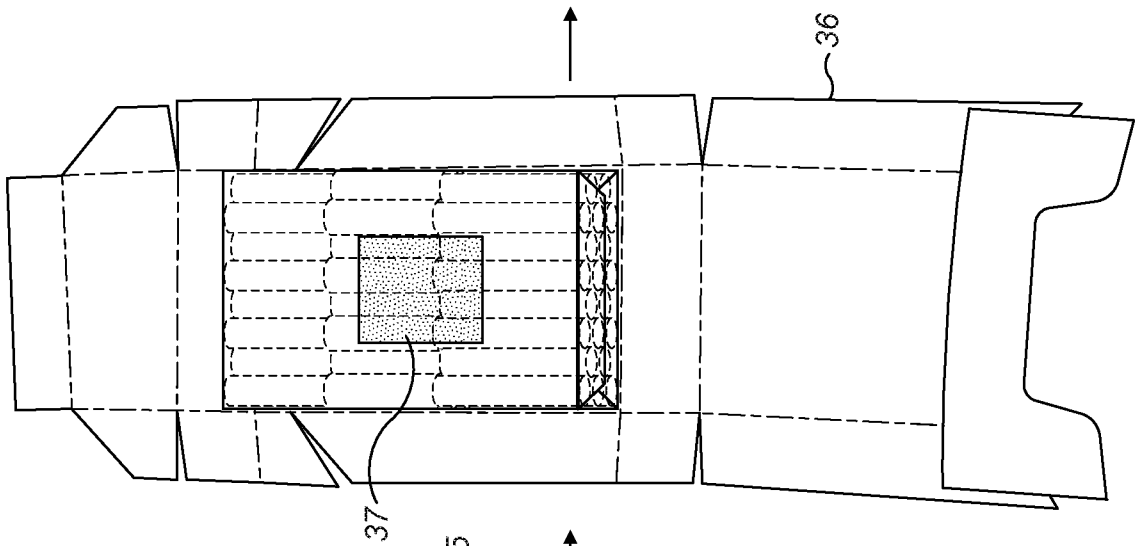
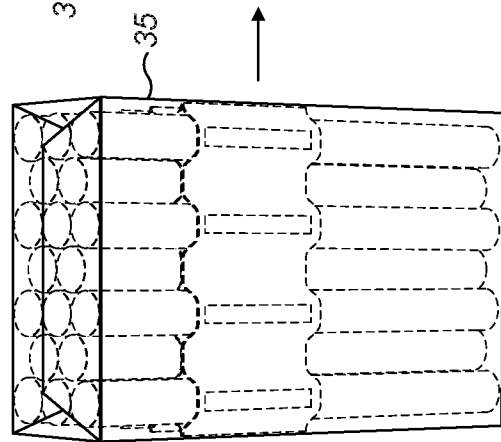
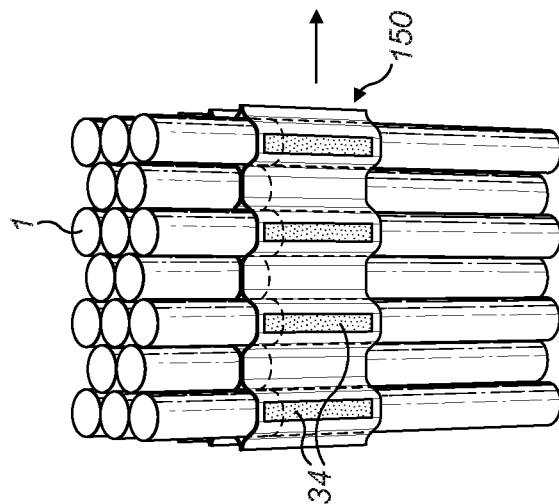


FIG. 6d



INTERNATIONAL SEARCH REPORT

International application No

PCT/GB2016/053050

A. CLASSIFICATION OF SUBJECT MATTER

INV. B65D85/10 B65B19/02 B65D75/32 B65B9/04
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 B65B

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, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2014/155081 A1 (BRITISH AMERICAN TOBACCO CO [GB]) 2 October 2014 (2014-10-02)	1-23, 27, 34, 35
Y	the whole document	17, 24-26, 28, 29, 31, 32, 36
A	-----	30, 33
Y	DE 195 07 563 A1 (GD SPA [IT]) 7 September 1995 (1995-09-07)	24, 25, 29, 36
Y	----- CN 2 344 337 Y (LI YUANSHEG [CN]) 20 October 1999 (1999-10-20)	26, 28, 29, 31, 32
	----- figure 1	
	----- -/-	



Further documents are listed in the continuation of Box C.



See patent family annex.

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Date of the actual completion of the international search

18 November 2016

Date of mailing of the international search report

30/11/2016

Name and mailing address of the ISA/

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Authorized officer

Visentin, Mauro

INTERNATIONAL SEARCH REPORT

International application No

PCT/GB2016/053050

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	FR 1 019 836 A (SCHALL M E) 27 January 1953 (1953-01-27) the whole document -----	1-36
Y	BE 359 625 A (SÜLLWALD W G) 31 May 1929 (1929-05-31) figure 2 -----	17

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/GB2016/053050

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2014155081	A1	02-10-2014	AR 095717 A1 04-11-2015
			AR 095718 A1 04-11-2015
			AR 095719 A1 04-11-2015
			EP 2978669 A1 03-02-2016
			EP 2978675 A1 03-02-2016
			EP 2978690 A1 03-02-2016
			EP 2978691 A1 03-02-2016
			KR 20150134420 A 01-12-2015
			KR 20150134421 A 01-12-2015
			KR 20150138287 A 09-12-2015
			TW 201502037 A 16-01-2015
			US 2016031634 A1 04-02-2016
			WO 2014155081 A1 02-10-2014
			WO 2014155082 A1 02-10-2014
			WO 2014155083 A1 02-10-2014
			WO 2014155085 A1 02-10-2014
			WO 2014155086 A1 02-10-2014
DE 19507563	A1	07-09-1995	DE 19507563 A1 07-09-1995
			GB 2287391 A 20-09-1995
			IT T0940145 A1 04-09-1995
			US 5575385 A 19-11-1996
CN 2344337	Y	20-10-1999	NONE
FR 1019836	A	27-01-1953	NONE
BE 359625	A	31-05-1929	NONE