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(54) Title: PACKAGING FOR TOBACCO INDUSTRY PRODUCTS

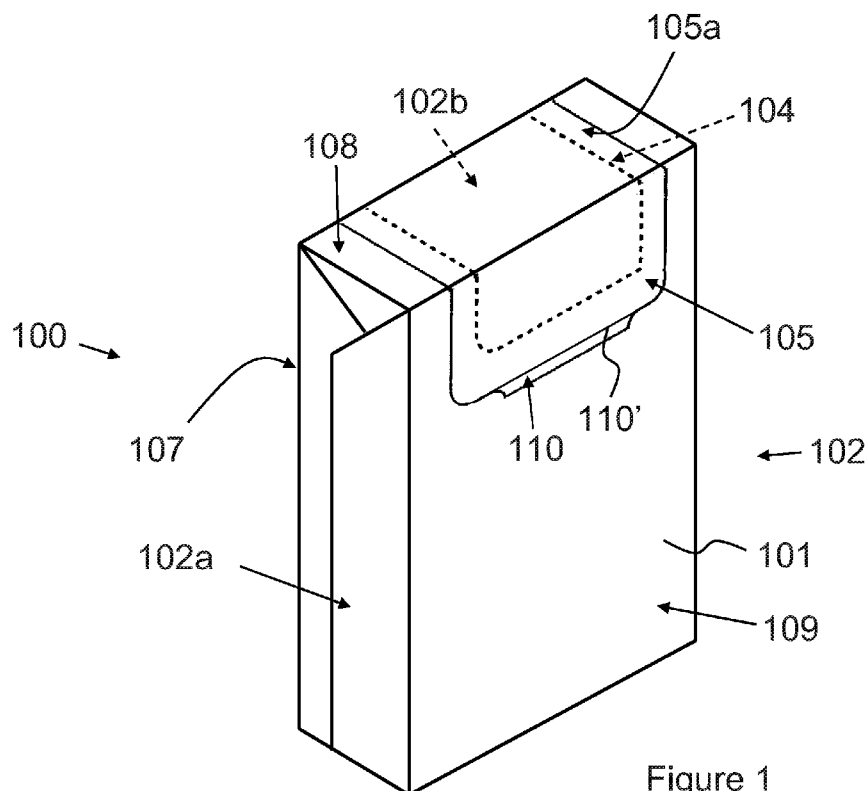


Figure 1

(57) Abstract: Packaging for a tobacco industry product is described including a sealed enclosure formed using a barrier material. An access region is at least partially defined in the barrier material by a line of weakness which can be broken to allow access to the sealed enclosure. A cover layer is attached to the access region so as to extend over at least part of the line of weakness and the packaging is configured to produce an audible sound and/or tactile signature when the line of weakness is broken.



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Packaging for Tobacco industry products

Technical Field

The invention relates to packaging for tobacco industry products. Some embodiments
5 relate to packaging having a line of weakness configured to produce an audible sound
and/or tactile signature when the line of weakness is broken.

Background

Resealable packaging can be provided for tobacco industry products to offer protection
10 to the product both prior to and after first opening of the packaging.

Summary of the Invention

According to embodiments of the invention, from a first aspect there is provided
packaging for a tobacco industry product comprising a sealed enclosure comprising a
15 barrier material, an access region at least partially defined in the barrier material by a
line of weakness which can be broken to allow access to the sealed enclosure, and a
cover layer attached to the access region and extending over at least part of the line of
weakness, wherein the packaging is configured to produce an audible sound and/or
tactile signature when the line of weakness is broken. The line of weakness can
20 comprise discontinuities in strength. The discontinuities in strength can comprise
spaced regions of varnish, lacquer or other material along the line of weakness.

At least part of the line of weakness over which the cover layer extends can be
configured to produce the audible sound and/or tactile signature when the line of
25 weakness is broken.

The portion of the cover layer extending over at least part of the line of weakness can be
at least partially opaque.

30 The cover layer can extend over the access region and outwardly of the at least part of
the line of weakness.

The cover layer can have a tacky surface on the portion which extends outwardly of the
at least part of the line of weakness, enabling the cover layer to be releasably attached
35 to the barrier material.

The cover layer can be adhered to the access region. The cover layer can be at least partially separable from the sealed enclosure together with the access region.

5 The cover layer can be provided with a tab, wherein the outer surfaces of the tab are free from adhesive or wherein the tab comprises a deadening agent which neutralises the tacky properties of an adhesive applied to the tab.

10 The line of weakness can be configured to exhibit lower resistance to being broken at a location proximal to the tab and greater resistance to being broken at a location distal from the tab.

The discontinuities in strength can comprise perforations in the barrier material.

15 The varnish, lacquer or other material can be water based and/or UV cured.

The line of weakness can comprise discontinuities in strength comprises alternating regions of increased and decreased strength, wherein the regions of increased strength can be 0.05 to 1.0 mm in length and the regions increased strength are spaced apart by 0.05 to 5mm length regions of decreased strength.

20 The packaging can further comprise tobacco industry products stored in the sealed enclosure.

25 The packaging can comprise an outer pack, wherein the sealed enclosure is contained within the outer pack. The outer pack can comprise a main body and a lid, and wherein the cover layer is attached to the lid.

30 The sealed enclosure can have first and second faces and the line of weakness at least partly defining the access region can extend over each of the first and second faces and wherein the at least part of the line of weakness over which the cover layer extends which is configured to produce an audible sound and/or tactile signature when the line of weakness is broken can be located only on one of the first and second faces of the sealed enclosure.

35 The sealed enclosure can have first and second faces, the line of weakness at least partly defining the access region can extend over each of the first and second faces, the tab can

be located on a portion of the cover layer extending over the first face of the sealed enclosure and the at least part of the line of weakness over which the cover layer extends which is configured to produce an audible sound and/or tactile signature when the line of weakness is broken, can be located only on the second face of the sealed enclosure.

According to embodiments of the invention, from a second aspect there is provided a blank for forming packaging for a tobacco industry product as set out above.

According to embodiments of the invention, from a third aspect there is provided a method of manufacturing packaging for a tobacco industry product comprising forming a line of weakness in a barrier material and applying a cover layer to the barrier material so that it extends over at least part of the line of weakness, wherein an audible sound and/or tactile signature is produced when the line of weakness is broken.

At least part of the line of weakness over which the cover layer extends can be configured to produce the audible sound and/or tactile signature when the line of weakness is broken.

Forming a line of weakness can comprise stamping a perforation pattern into the barrier material or applying a varnish, lacquer or other material to the barrier material.

Brief Description of the Drawings

Embodiments of the invention are described below, by way of example only, with reference to the accompanying drawings, in which:

Figure 1 is a schematic illustration of a pack for tobacco industry products, the pack including a sealed enclosure formed by a barrier layer having an access region defined by a line of weakness, and a cover layer extending over the line of weakness;

Figure 2a is a schematic illustration of a pack for tobacco industry products, the pack including a sealed enclosure formed by a barrier layer having an access region defined by a line of weakness configured to exhibit lower resistance to being broken in a first location than in a second location;

Figure 2b is a schematic illustration of a cover layer which can be used with the packs of Figures 2a and 3;

Figure 3 is a schematic illustration of a pack for tobacco industry products similar to that of Figure 2, except that the line of weakness is at least partly formed by spaced regions of varnish or other coating applied to a cut in the barrier material;

Figure 4 is a schematic illustration of a blank for forming the pack for tobacco industry products illustrated in Figure 2a;

Figure 5 is a schematic illustration of a blank for forming the pack for tobacco industry products illustrated in Figure 3; and

Figure 6 is a flow diagram illustrating a method of manufacturing packaging for a tobacco industry product.

10

Detailed Description

As used herein, the term “smoking article” includes smokeable products such as cigarettes, cigars and cigarillos whether based on tobacco, tobacco derivatives such as nicotine, expanded tobacco, reconstituted tobacco or tobacco substitutes and also heat-not-burn products and aerosol delivery products such as e-cigarettes. The smoking article may be provided with a filter for the gaseous flow drawn by the smoker.

A tobacco industry product refers to any item made in, or sold by the tobacco industry, including smoking articles as defined above. Examples of tobacco industry products typically include a) cigarettes, cigarillos, cigars, tobacco for pipes or for roll-your-own cigarettes, (whether based on tobacco, tobacco derivatives, expanded tobacco, reconstituted tobacco or tobacco substitutes); b) non-smoking products incorporating tobacco, tobacco derivatives, expanded tobacco, reconstituted tobacco or tobacco substitutes such as snuff, snus, hard tobacco, and heat-not-burn products; and c) other nicotine-delivery systems such as inhalers, lozenges and gum. This list is not intended to be exclusive, but merely illustrates a range of products which are made and sold in the tobacco industry.

Figure 1 is a schematic illustration of a pack 100 for tobacco industry products having a barrier material 101 forming a sealed enclosure 102 around a tobacco industry product, in the present example a charge of smoking articles (not shown). The sealed enclosure 102 has a main body 102a and an access region 102b defined by a line of weakness 104 in the barrier material 101. A cover layer 105 extends over at least part of the line of weakness 104, in the present example extending outwardly of each of the edges of the access region 102b defined by the line of weakness 104. The cover layer 105 is, in the present example, attached to the access region 102b of the barrier material 101 using a

permanent adhesive. On the portion 105a of the cover layer 105 which extends outwardly of the edges of the access region 102b is a permanently tacky surface which faces the barrier material 101 and releasably attaches the cover layer 105 to the barrier material 101. However, in other examples, the portion 105a of the cover layer 105
5 which extends outwardly of the edges of the access region 102b does not have a permanently tacky surface, such that it is not releasably attached to the barrier material 101.

A user is able to remove a tobacco industry product from within the sealed enclosure
10 102 by lifting the cover layer 105 away from the barrier material 101 and, in doing so, separating the access region 102b of the barrier material 101 from the remainder of the barrier material by breaking the line of weakness 104.

The line of weakness 104 is configured to produce an audible sound and/or tactile
15 signature when broken for the first time. The provision of an audible sound and/or tactile signature by at least part of the line of weakness 104 can indicate to a consumer that the sealed enclosure 102 of the pack 100 is being opened for the first time and the contents of the pack 100 have not therefore been tampered with. In the present example, the at least part of the line of weakness 104 which is covered by the cover layer
20 105 is configured to produce an audible sound and/or tactile signature when broken.

The audible sound and/or tactile signature is achieved, in the present example, by the provision of discontinuities in strength as the line of weakness 104. In the present example, the discontinuities in strength are provided in the form of perforations in the
25 barrier material 101, forming the line of weakness 104. The perforations are configured to produce an audible sound and/or tactile signature when the line of weakness 104 is broken. On opening the access region 102b, a degree of resistance is encountered at the regions of barrier material 101 located between the perforations. The resistance to removal is reduced at each perforation. The alternating regions of perforation and
30 barrier material leads to alternating degrees of high and low resistance, or increased and decreased strength, or higher and lower strength, resulting in a tactile sensation or signature, detectable by the user on opening of the access region 102b. The term 'signature' is used herein to indicate a changing tactile effect experienced by the user as the line of weakness is broken. Further, an audible sound is produced as the regions of
35 barrier material located between the perforations are sequentially broken.

Alternatively, the line of weakness can be configured to produce either a tactile signature or an audible sound.

- The perforations can take various forms, but are preferably round or elongate in shape.
- 5 The perforations (or alternative region of reduced strength) may have a length (i.e. longitudinal aperture size, or diameter) of between 0.05 and 5 mm, but preferably between 0.5 and 2mm. In one example the perforations have a length of about 1mm. The regions of increased strength, or barrier material 101 between the perforations, may be between 0.05mm and 2.0mm in length, but are preferably 0.2mm to 0.5mm in
- 10 length. In one example, the regions of increased strength are about 0.2mm in length. The regions of increased and reduced strength are configured such that an audible sound and/or tactile signature can be clearly detected by the consumer without causing significant force to break the line of weakness 104 and producing a clean tear line.
- 15 The barrier material 101 may be, for example, a metal/plastics laminate or a vacuum metallised plastics material. Alternatively, a mono non-metallised plastics film of sufficiently high barrier characteristics may be used. Another possibility is to use a paper laminate material having sufficient barrier properties.
- 20 The sealed enclosure 102 is formed, in the present example, from a rectangular blank of sheet barrier material 101. The blank of sheet material is wrapped about the charge of smoking articles so as to extend continuously (without a seam) from the front of the charge, over the top and onto the rear. Sealing seams are formed at the sides of the charge and at the base.
- 25 The line of weakness 104 comprises discontinuities in strength, in the present example spaced along the line of weakness 104. The discontinuities in strength are provided in the form of linear perforations in the barrier material 101 which are configured to produce an audible sound and/or tactile signature when the line of weakness 204 is
- 30 broken.
- In the present example, the access region 102b extends over the rear face 107, top face 108 and front face 109 of the enclosure 102. The line of weakness 104 would be generally square in shape when the barrier material 101 is laid flat. The cover layer 105
- 35 is, in the present example, adhesively applied at the rear face 107, top face 108 and front face 109 of the enclosure 102 so as to overlie and to extend outwardly of the access

region 102b. Alternatively, the access region 102b and/or cover layer 105 may extend over other faces of the enclosure 102, and/or over one, two, four or more faces of the enclosure 102.

5 In the present example, the cover layer 105 is adhered permanently to the rear 107 of the barrier material 102 preventing complete removal of the cover layer 105 with the access region 102b. In particular, the portion 105a of the cover layer 105 which extends outwardly of the edges of the access region 102b and has a permanently tacky surface is provided on the top 108 and front 109 faces of the enclosure 102 and a portion (not
10 shown) of the cover layer 105 extending outwardly of the access region 102b over the rear face 107 of the enclosure 102 has a permanent adhesive applied thereto.

Alternatively, the line of weakness 104 can form an incomplete loop, for instance in a 'U' shape, such that a portion of the barrier material 101 connecting the ends of the line
15 of weakness 104 forms a hinge connecting the access region 102b to the main body 102a of the enclosure 102. Alternatively the line of weakness 104 can form a complete loop, with permanently tacky adhesive applied continuously around all edges of the cover layer 105, enabling complete removal of the cover layer 105 together with access region 102b.

20

The permanently tacky adhesive allows for the cover layer 105 to be lifted away from the barrier material 101 and replaced a number of times, allowing a user to gain access to the smoking articles by lifting the cover layer 105 together with the access region 102b, and after removal of a smoking article or other tobacco industry product the user
25 can replace the cover layer 105, re-sealing the enclosure 102. As a result the ingress or egress of air and moisture can be substantially prevented after the enclosure 102 has been first opened, maintaining the freshness of the smoking articles or other tobacco industry products contained therein for longer.

30 Rather than using a permanent adhesive to attach the cover layer 105 to the access region 102b, the same permanently tacky adhesive as is provided on the outer surfaces 105a of the cover layer 105 can be used, for instance provided that the line of weakness 104 severs sufficiently easily compared with the degree of adhesion between the secured cover layer 105 and the underlying access region 102b. In this way, the cover
35 layer 105 and underlying access region 102b will remain in contact as the access region 102b and cover layer 105 are lifted by pulling the cover layer 105. A further alternative

to permanent adhesive is the provision of alternative permanent bonding means such as hot melt material to bond the cover layer 105 to the access region 102b, or other means to provide a connection between these two components.

5 The cover layer 105 is provided with a tab 110 which a user can grasp to peel back the cover layer 105. In the present example, the tab 110 extends from the cover layer 105 and is connected to the cover layer by a fold line 110', enabling the tab 110 to be raised away from the barrier material 101.

10 To enable a user to readily grasp the tap 110 to open the access region 102b, the tab 110 is not adhered to the underlying barrier material 101. For instance, the tab 110 can be provided free from any adhesive including the permanently tacky adhesive present on the portion 105a of the cover layer 105 extending outside the access region 102b. Alternatively, the tab 110 can have a deadening agent which neutralises the tacky
15 properties of an adhesive applied to the tab.

The cover layer 105 can be at least partially opaque, since the user does not need to see the line of weakness to determine whether it has been broken prior to first opening of the pack 100. For instance, the portion of the cover layer 105 covering the line of
20 weakness 104 can be completely or at least substantially opaque.

The pack 100 may be used as illustrated, or may be inserted into an outer body, such as a rigid outer cardboard pack. The rigid outer cardboard pack may have a lid portion and a main body portion. The tab 110 and/or other parts of the cover layer 105 can be
25 adhered inside the lid portion of the outer body, such that they are opened together with the outer lid portion.

Figure 2a illustrates a pack 200 according to another embodiment, and Figure 2b is a schematic illustration of a cover layer 105 which can be used with the packs of Figures
30 1, 2a and 3. Features in common with Figure 1 are depicted by corresponding reference numerals.

The sealed enclosure 102 depicted in Figure 2a is similar to that of Figure 1, except that only a portion 204a of the line of weakness 204 of the embodiment of Figure 2a is
35 configured to produce an audible sound and/or tactile signature when broken.

In the present example, the part 204a of the line of weakness 204 configured to produce an audible sound and/or tactile signature when the line of weakness 204 is broken is located on only on the top end face 108 of the sealed enclosure 102. In alternative examples, the part 204a of the line of weakness 204 configured to produce an audible sound and/or tactile signature can be located only on the front main face 109.

As with the example of Figure 1, the audible sound and/or tactile signature is achieved by the provision of discontinuities in strength in the line of weakness 204. In the present example, the discontinuities in strength are provided in the form of perforations in the barrier material 101 on the top face 108 of the enclosure 102. The perforations are configured to produce an audible sound and/or tactile signature when the line of weakness 204 is broken. The portion 204a of the line of weakness 204 on the top face 108 of the enclosure 102 is formed, in the present example, by 1mm long elongate perforations spaced apart by 0.2mm gaps of barrier material 101.

The line of weakness 204b, 204c defining the access region 102b on the front main face 109 is provided by a cut 204b extending through the thickness of the barrier material 101, having gaps 204c therein. In the present example, two such gaps are provided in the cut 204b, each being 0.2mm long, although other dimensions can be used. Alternatively, the access region 102b could be defined on the front main face 109 by a line of weakness without any discontinuities in strength, such as a partial cut or score line. Alternatively, the line of weakness on the front main face 109 may be a line of weakness with discontinuities in strength which provides less resistance than the line of weakness 204a on the top main face 108.

On opening the access region 102b, a degree of resistance is encountered at the regions of barrier material 101 located between the perforations. The resistance to removal is reduced at each perforation. The alternating regions of perforation hole and barrier material leads to alternating degrees of high and low resistance, resulting in a tactile sensation, detectable by the user on opening of the access region 102b. Further, an audible sound is produced as the regions of barrier material located between the perforation holes are sequentially broken.

Referring to the cover layer 105 of Figure 2b, this comprises the edge portion 105a which extends outwardly of the access region 102b when applied to the enclosure 102, a

main region 105b which is adhered to the surface of the access region 102b, an attachment region 105c which permanently attaches the cover layer 105 to the enclosure 102 and the tab 110.

5 When the cover layer 105 of Figure 2b is applied to the access aperture of the pack 200 of Figure 2a, the resulting arrangement is such that the line of weakness 204 is configured to exhibit lower resistance to being broken at a location proximal to the tab 110 and stronger resistance to being broken at a location distal from the tab 110. In the present example, the cut 204b extending over the main face 109 of the sealed enclosure
10 102 provides less resistance on opening than the part of the line of weakness 204a extending over the top end face 109 of the sealed enclosure 102. This provides ease of opening for the consumer, as a portion of the access region 102b is readily opened, and resistance to opening is only encountered when the user pulls the cover layer 105 and access region 102b away from the main body 102a in the region of the top end face 108
15 of the sealed enclosure 102.

The edge of the access region 102b proximal to the edge of the cover layer 105 provided with the tab 110 is devoid of part of the line of weakness 204a configured to produce the audible sound and/or tactile signature. Having a cut 204b extending along the edge of
20 the access region 102b proximal to the edge of the cover layer 105 provided with the tab 110 can be preferable to a line of weakness with discontinuities in strength, since the likelihood of ripping the access region 102b on opening is reduced. In the present example, the discontinuities in strength in the line of weakness 204 are only provided at portions which tear easily in the direction of separation of the cover layer 105 from
25 the enclosure 102 on opening the pack 200.

Figure 3 is a schematic illustration of a pack 300 for tobacco industry products similar to that of Figure 2, except that the line of weakness 304 of Figure 3 is at least partly
30 formed by spaced regions of varnish or other coating applied to a cut in the barrier material 101.

Discontinuities in strength along regions of the line of weakness 304a are provided on the top end face 108 of the sealed enclosure 102 as seen in Figure 2. In this
35 embodiment, the discontinuities in strength are provided by a varnish, lacquer or other material applied to the line of weakness 304a at spaced regions. The material is applied

to the surface of the barrier material 101 in regions across the line of weakness 304a at intervals along its length. The intervals between regions of material may be uniform, such that the material is applied in an equi-spaced arrangement, or can vary, such that the material is applied with some or all of the spaces between the regions being non-uniform. Where a varnish, lacquer or other coating is used, this can be left to cure, so as to form spaced deposits. On opening the access region 102b by lifting the cover layer 105, the material regions, which can, for instance, be brittle when fully cured, are sequentially broken creating an audible ripping or rasping sound, thereby generating an audible signature. The user is also provided with a tactile sensation as the regions break. The regions can be arranged such that the user feels a degree of resistance as each region is reached during opening.

The line of weakness 304a may be provided in the form of a cut extending through thickness of the barrier material 101, or it may be provided in the form of a line of weakness not extending fully through the thickness of the barrier material 101, such as a partial cut or score line.

Alternatively, the part of the line of weakness 304a producing the audible and/or tactile signature may be provided in the form of perforations, which may be combined with lacquered regions on the top end face 108 of the sealed enclosure 102.

Although the line of weakness 304a has been described as having the varnish, lacquer or other material applied thereto, in alternative embodiments, the material may otherwise be arranged between the cover layer 105 and barrier material 101 in order to produce the tactile signature and/or audible sound when the line of weakness 304a is broken. For instance, regions of adhesive can be applied between the barrier material 101 and the cover layer 105 outside of the line of weakness 304a which break when the cover layer 105 is lifted and the line of weakness 304a is broken.

As with the embodiment of Figure 2a, the cut 304b defining the access region 102b on the front main face 109 of the sealed enclosure 102 provides less resistance than the line of weakness 304a with discontinuities in strength extending over the top end face 108 of the sealed enclosure 102.

As described with reference to Figure 2a, the audible sound and/or tactile sensation indicate to the user that the sealed enclosure 102 has not previously been opened, and provides reassurance to the consumer that the product integrity has been preserved.

5 As can be seen in the embodiment illustrated in Figure 3, the plurality of elongate lacquered or other material regions are arranged perpendicularly to the line of weakness 304. The lacquer may be water based and cured by heat. Alternatively the lacquer may be curable by exposure to UV light.

10 In any of the embodiments described with reference to Figures 1, 2a or 3, the audible and/or tactile signature primarily depends on the size, spacing and thickness of the discontinuities in strength (for instance as formed by perforations or lacquered regions). These features can all be controlled to achieve a desired audible and/or tactile signature.

15 In each of the embodiments described, the discontinuities in strength can be formed using regions of increased and/or reduced strength which are equispaced along the line of weakness, or which have a varied spacing along the line of weakness. The regions of increased strength along the line of weakness 204, 304 (for instance the lacquered
20 regions or the regions of barrier material between perforations) may be spaced according to the desired frequency of audible sound. Increased spacing will create a lower pitch audible signature assuming the access flap is always opened at the same speed. Conversely, closer spacing can result in a higher pitched audible signature. The length of the regions of increased strength can be selected according to the volume of
25 audible sound or strength of tactile sensation. The audible signature will be louder in volume for longer regions of increased strength, and conversely, shorter regions of increased strength will result in an audible signature with a lower volume. A varying audible signature could be created by varying each of these properties of the discontinuities in strength along the length of the line of weakness 204, 304. The total
30 number of discontinuities in strength along the line of weakness can also be selected according to a desired length for the audible and/or tactile signature. For instance, between 3 and 100 discontinuities in strength could be provided, or greater than 5, 10 or 15 discontinuities in strength can be used.

35 Figure 4 is a schematic illustration of a blank 400 used to create the sealed enclosure 102 of Figure 2. The blank 400 is a layer of barrier material 101, for instance a

metallic/plastics laminate as previously described. In the present example, the blank 400 has first and second regions 409, 408 to be formed into front 109 and top 108 end faces of the resulting enclosure 102. A third region 407 is to be formed into the rear face 107 of the enclosure 102. A line of weakness 204 in the barrier material 101 at least partially defines an access region 102b. The line of weakness 204 extends over the first and second regions 409, 408, and is provided with discontinuities in strength on the second region 408 only, corresponding to the top face 108 of the enclosure 102. The cut 204b also extends from ends of the part of the lines of weakness 204a closest to the third region of the blank 400 forming the rear of the pack. In the present example, these portions of the cut 204b' are formed into semi-circular shapes which extend generally towards each other but do not meet, leaving a gap forming a hinge portion connecting the access region 102b to the remainder of the blank 400.

In the embodiment illustrated in Figure 4, the part 204a of the line of weakness 204 with discontinuities in strength is a line of perforations. A cut 204b extends over the first region 409 defining part of the access region 102b. A line of weakness without discontinuities in strength such as a score line or partial cut not extending through the thickness of the barrier material may alternatively be used. A cover layer 105 as previously described is applied to the barrier material 101 over the access region 102b. The cover layer 105 has edges which extend outwardly of at least the part 204a of the line of weakness 204 configured to produce an audible sound and/or tactile signature and face the barrier material 101. The cover layer 105 may additionally have edges which extend over the edges of the cut 204b.

As previously described, weak, uncut regions or gaps 204c can be provided in the cut 204b to prevent complete separation of part of the access region 102b from the remainder of the barrier material 101 when the blank 400 is formed into a sealed enclosure 102 and before the pack 200 is opened.

Figure 5 is a schematic illustration of a blank 500 used to create the sealed enclosure 102 of Figure 3. The blank 500 of Figure 5 is substantially the same as the blank 400 illustrated in Figure 4, as described above, differing only in the form of the line of weakness 304. Corresponding reference numerals are used for corresponding features. Part 304a of the line of weakness 304 is provided in the form of a cut extending through the thickness of the barrier material and is provided with spaced regions of varnish or lacquer extending across the line of weakness 304. Alternatively, the part

304a line of weakness 304 can be provided as a line of weakening such as a partial cut or score line.

Figure 6 is a flow diagram illustrating a method of manufacturing packaging as
5 described with reference to Figures 1 to 5.

The method of manufacturing the packaging comprises the steps as shown in Figure 6. A line of weakness is formed in a barrier material to define an access region (step S1). In one example, a cutting stamp is used to create the line of weakness 104, 204
10 illustrated in the embodiments of Figures 1, 2a and 4. The cutting stamp can be arranged to form the cut portions 204b, 204b' illustrated in Figures 2a and 4. These cuts 204b, 204b' can be full or partial cuts through the thickness of the barrier material. The cutting stamp can also be configured to stamp perforations into the barrier material to produce the lines of weakening 104a, 204a of the embodiments of Figures 1,
15 2a and 4, such that these portions of the lines of weakness 104, 204 produce an audible sound and/or tactile signature when broken.

Alternatively, for the embodiments of Figures 3 and 5, a cutting stamp can be used to produce the cuts to which a coating is applied to form the lines of weakness 304a of
20 these embodiments. These cuts may be full or partial cuts through the thickness of the barrier material. Once the line of weakness 304 is introduced to the barrier material, regions of varnish, lacquer or other material such as adhesive, can be applied across the part 304a of the line of weakness 304 on the top end face 508. The varnish, lacquer or other material can be applied as a plurality of spaced elongate regions perpendicular to
25 the line of weakness 304. The varnish, lacquer or other material may be applied by a method such as printing. The material is left to cure, so as to form spaced deposits. The material may be water based and cured by heat. Alternatively the material might be curable by exposure to UV light.

30 Forming a line of weakness in a barrier material to define an access region (step S1) is therefore performed in a manner such that a portion of the line of weakness is configured to produce an audible sound and/or tactile signature when broken, as previously described.

After the line of weakness is introduced to the barrier material, a cover layer is applied to the barrier material extending over the portion of the line of weakness configured to produce an audible sound and/or tactile signature when broken (step S2).

5 The embodiments illustrated in Figures 1, 2a and 4 may be adapted such that the barrier material is reinforced along the perforation line, increasing the resistance to opening and providing a stronger tactile sensation or signature and louder audible sound. Embossing, such as pin embossing, may be used as an alternative to perforations, producing a pattern similar to a perforated line, with the embossed
10 regions only extending partially through the thickness of the barrier material. A person skilled in the art will be aware that ways of introducing an audible sound and/or tactile signature which have not been described could be used to the same or similar effect. The audible sound and/or tactile signature can be provided by a part of a line of weakness on a single face such as the top face as described with reference to Figures 2a
15 and 3, the part of the line of weakness configured to provide the audible sound and/or tactile signature can be provided on a different face, or more than one face.

In order to address various issues and advance the art, the entirety of this disclosure shows by way of illustration various embodiments in which the claimed invention(s)
20 may be practiced and provide for superior packaging for tobacco industry products. 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 teach the claimed features. It is to be understood that advantages, embodiments, examples, functions, features, structures and/or other
25 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 disclosure. Various embodiments may suitably comprise, consist of, or consist essentially of, various combinations of the disclosed elements,
30 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. Packaging for a tobacco industry product comprising:
a sealed enclosure comprising a barrier material;
5 an access region at least partially defined in the barrier material by a line of weakness which can be broken to allow access to the sealed enclosure; and
a cover layer attached to the access region and extending over at least part of the line of weakness;
wherein the packaging is configured to produce an audible sound and/or tactile
10 signature when the line of weakness is broken, wherein the line of weakness comprises discontinuities in strength and wherein the discontinuities in strength comprise spaced regions of varnish, lacquer or other material along the line of weakness.
2. Packaging according to claim 1, wherein at least part of the line of weakness
15 over which the cover layer extends is configured to produce the audible sound and/or tactile signature when the line of weakness is broken.
3. Packaging according to claim 1 or 2, wherein the portion of the cover layer
extending over at least part of the line of weakness is at least partially opaque.
20
4. Packaging according to claim 1, 2 or 3, wherein the cover layer extends over the access region and outwardly of the at least part of the line of weakness.
5. Packaging according to claim 4, wherein the cover layer has a tacky surface on
25 the portion which extends outwardly of the at least part of the line of weakness, enabling the cover layer to be releasably attached to the barrier material.
6. Packaging according to any preceding claim, wherein the cover layer is adhered to the access region, and is at least partially separable from the sealed enclosure
30 together with the access region.
7. Packaging according to any preceding claim, wherein the cover layer is provided with a tab, wherein the outer surfaces of the tab are free from adhesive or wherein the tab comprises a deadening agent which neutralises the tacky properties of an adhesive
35 applied to the tab.

8. Packaging according to claim 7, wherein the line of weakness is configured to exhibit lower resistance to being broken at a location proximal to the tab and greater resistance to being broken at a location distal from the tab.

5

9. Packaging according to any preceding claim, wherein the discontinuities in strength further comprise perforations in the barrier material.

10. Packaging according to any preceding claim 11, wherein the varnish, lacquer or other material is water based and/or UV cured.

10

11. Packaging according to any preceding claim, wherein the line of weakness comprising discontinuities in strength comprises alternating regions of increased and decreased strength;

15

wherein the regions of increased strength are 0.05 to 1.0 mm in length; and wherein the regions of increased strength are spaced apart by 0.05 to 5mm length regions of decreased strength.

12. Packaging according to any preceding claim, further comprising tobacco industry products stored in the sealed enclosure.

20

13. Packaging according to any preceding claim, further comprising an outer pack, wherein the sealed enclosure is contained within the outer pack.

14. Packaging according to claim 13, wherein the outer pack comprises a main body and a lid, and wherein the cover layer is attached to the lid.

25

15. Packaging according to any preceding claim, wherein the sealed enclosure has first and second faces and wherein the line of weakness at least partly defining the access region extends over each of the first and second faces;

30

and wherein the at least part of the line of weakness over which the cover layer extends which is configured to produce an audible sound and/or tactile signature when the line of weakness is broken is located only on one of the first and second faces of the sealed enclosure.

35

16. Packaging according to claim 7 or 8, wherein:

the sealed enclosure has first and second faces;

the line of weakness at least partly defining the access region extends over each of the first and second faces;

5 the tab is located on a portion of the cover layer extending over the first face of the sealed enclosure; and

the at least part of the line of weakness over which the cover layer extends which is configured to produce an audible sound and/or tactile signature when the line of weakness is broken, is located only on the second face of the sealed enclosure.

10 17. A blank for forming packaging for a tobacco industry product according to any preceding claim.

18. A method of manufacturing packaging for a tobacco industry product according to any of claims 1 to 16, comprising forming a line of weakness in a barrier material and
15 applying a cover layer to the barrier material so that it extends over at least part of the line of weakness, wherein an audible sound and/or tactile signature is produced when the line of weakness is broken, wherein the line of weakness comprises discontinuities in strength and wherein the discontinuities in strength comprise spaced regions of varnish, lacquer or other material along the line of weakness..

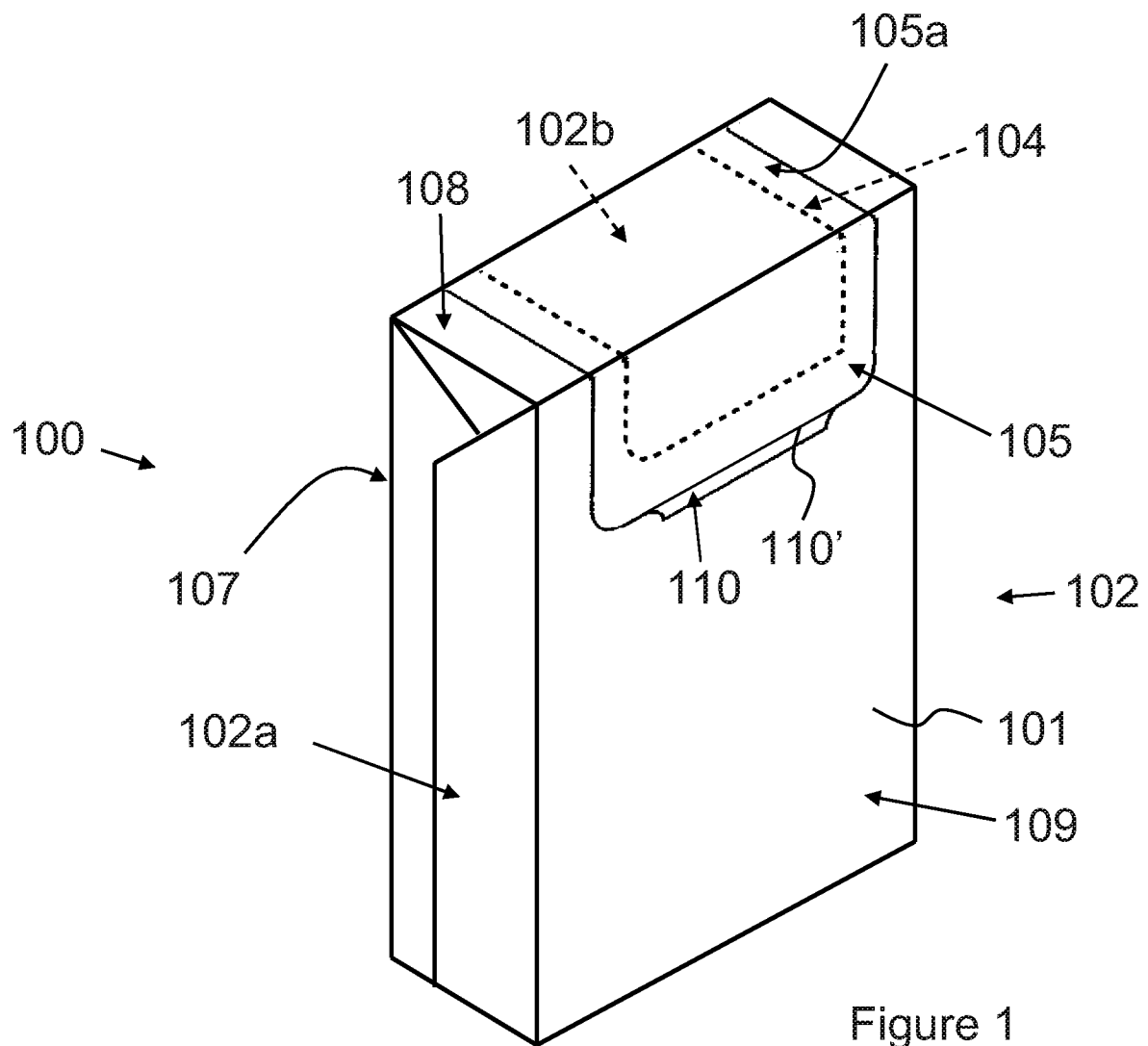
20

19. A method according to claim 18, wherein at least part of the line of weakness over which the cover layer extends is configured to produce the audible sound and/or tactile signature when the line of weakness is broken.

25 20. A method according to claim 18 or 19, wherein forming a line of weakness comprises stamping a perforation pattern into the barrier material or applying a varnish, lacquer or other material to the barrier material.

30

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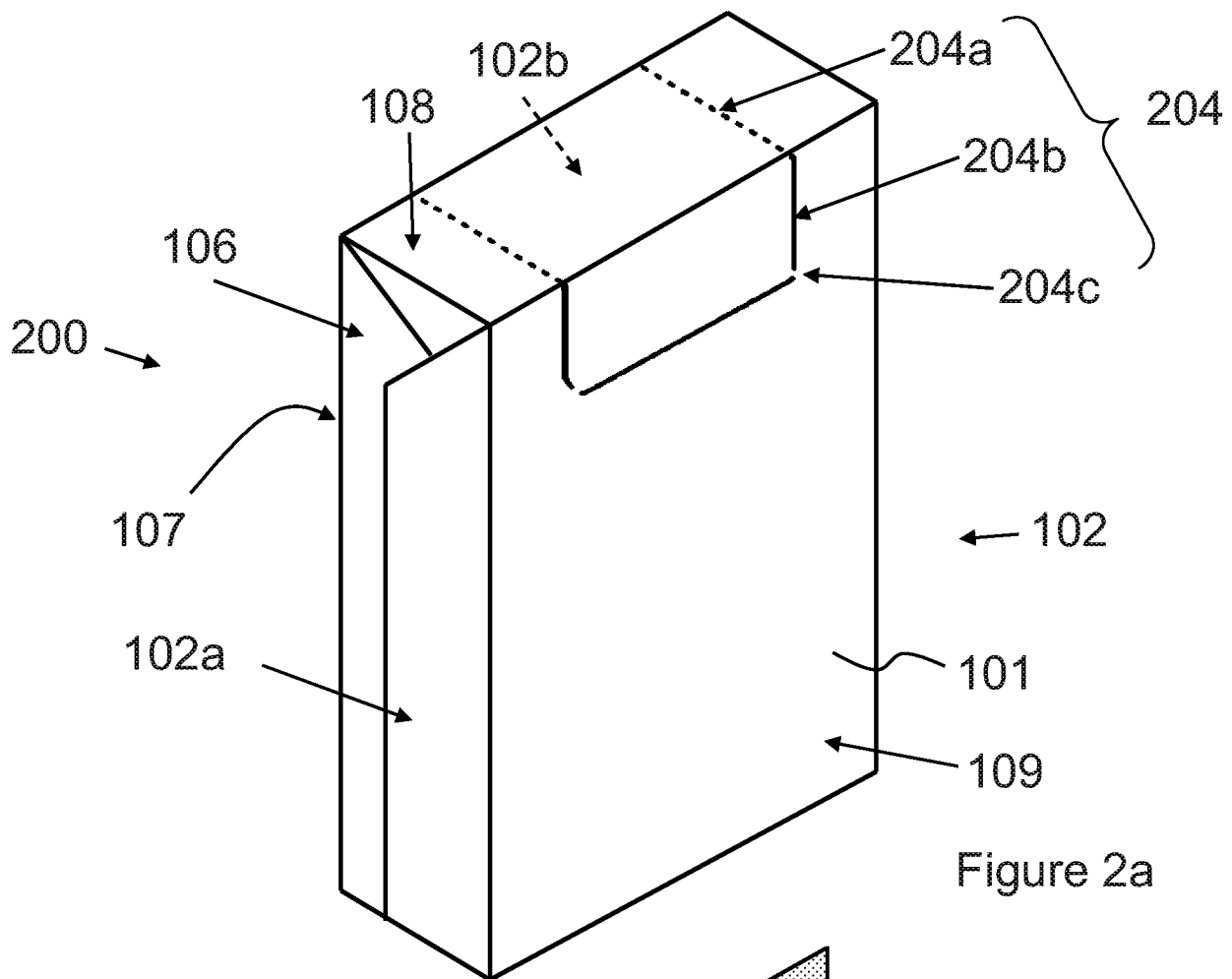


Figure 2a

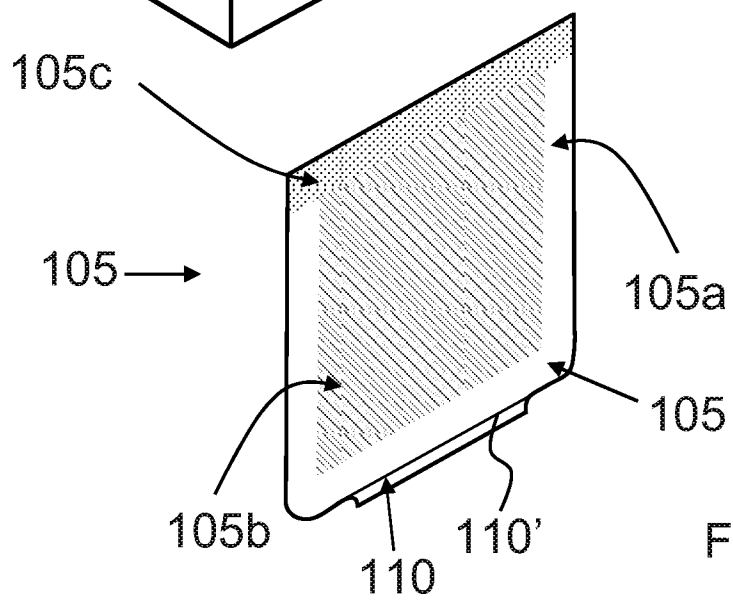
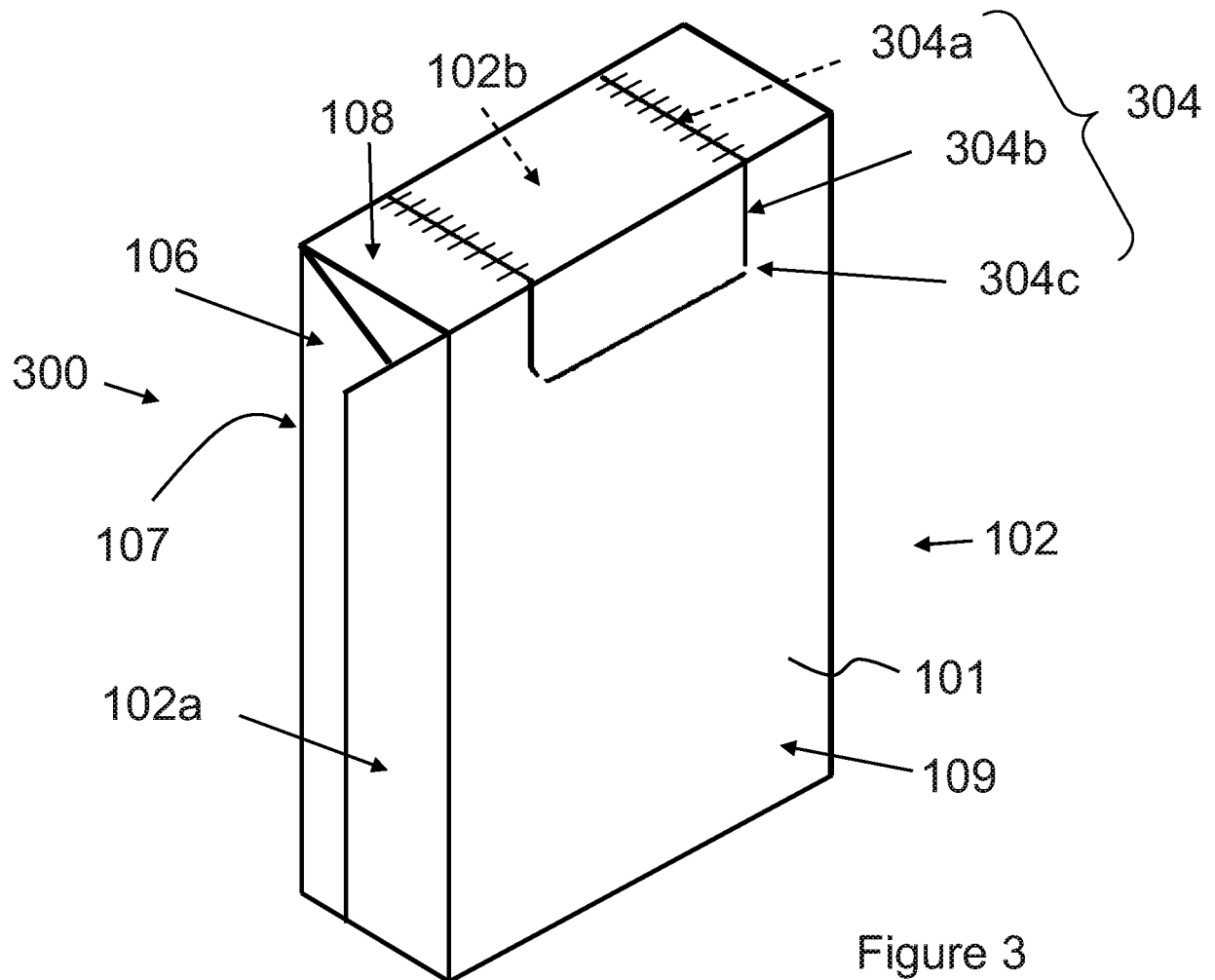


Figure 2b

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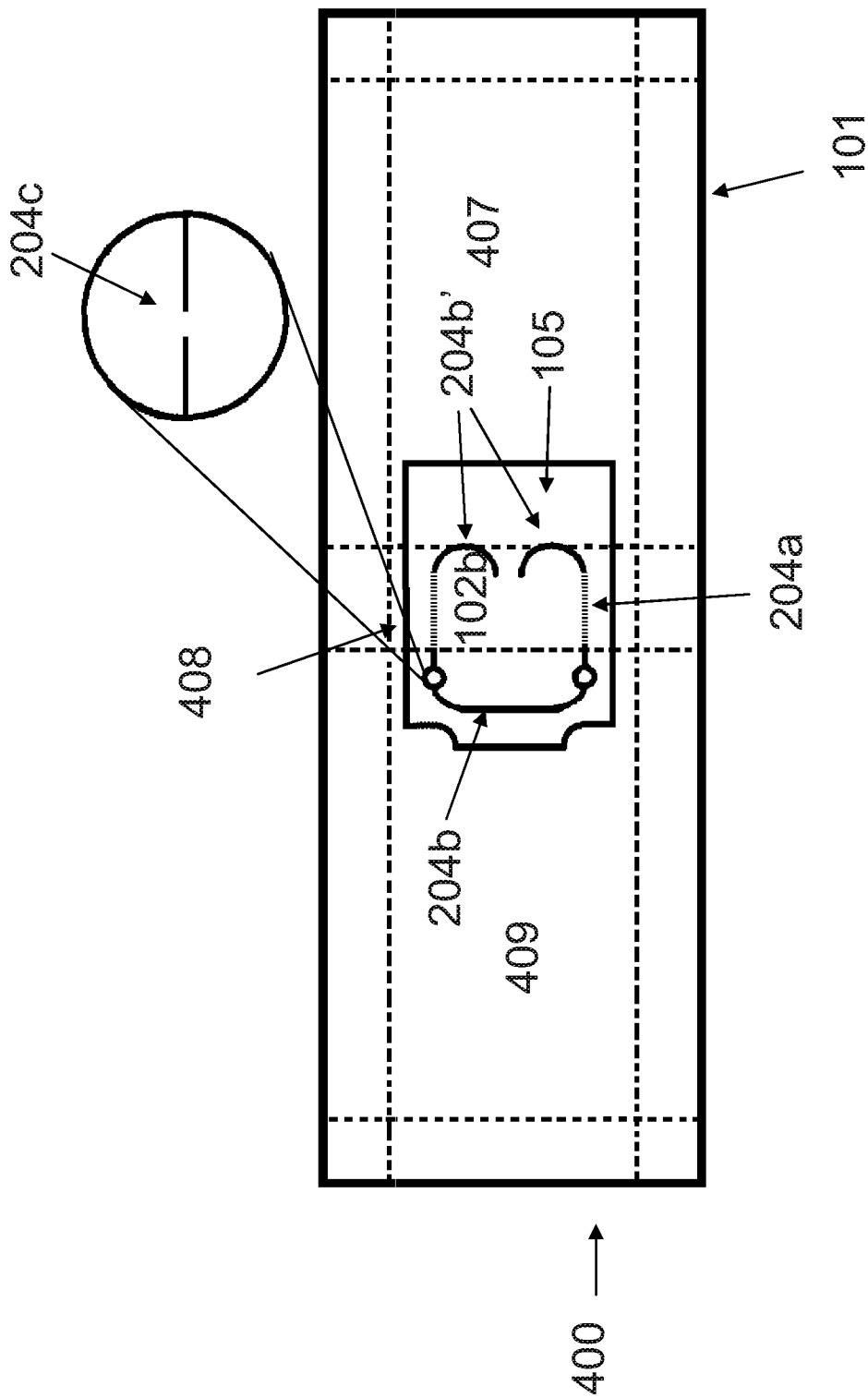


Figure 4

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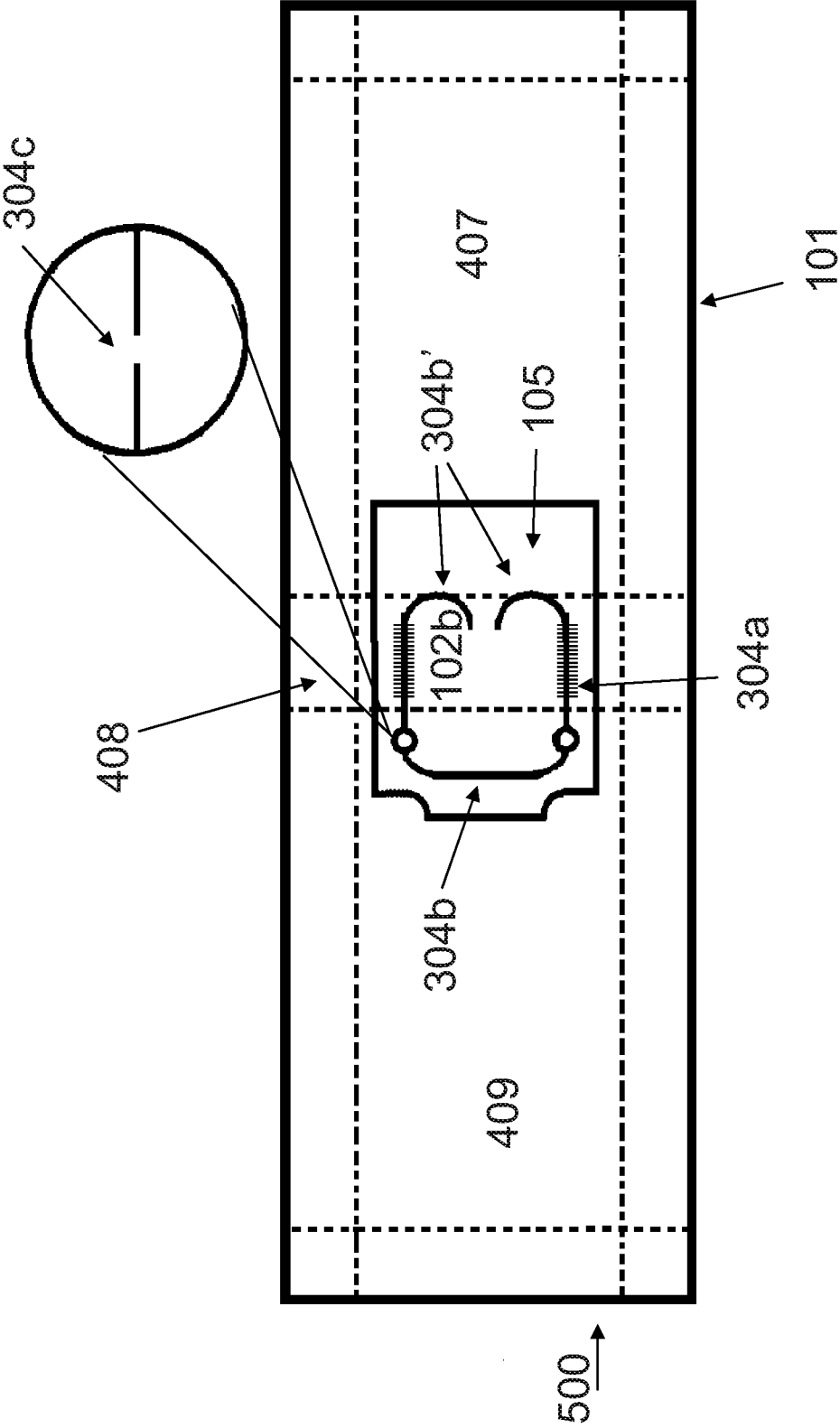


Figure 5

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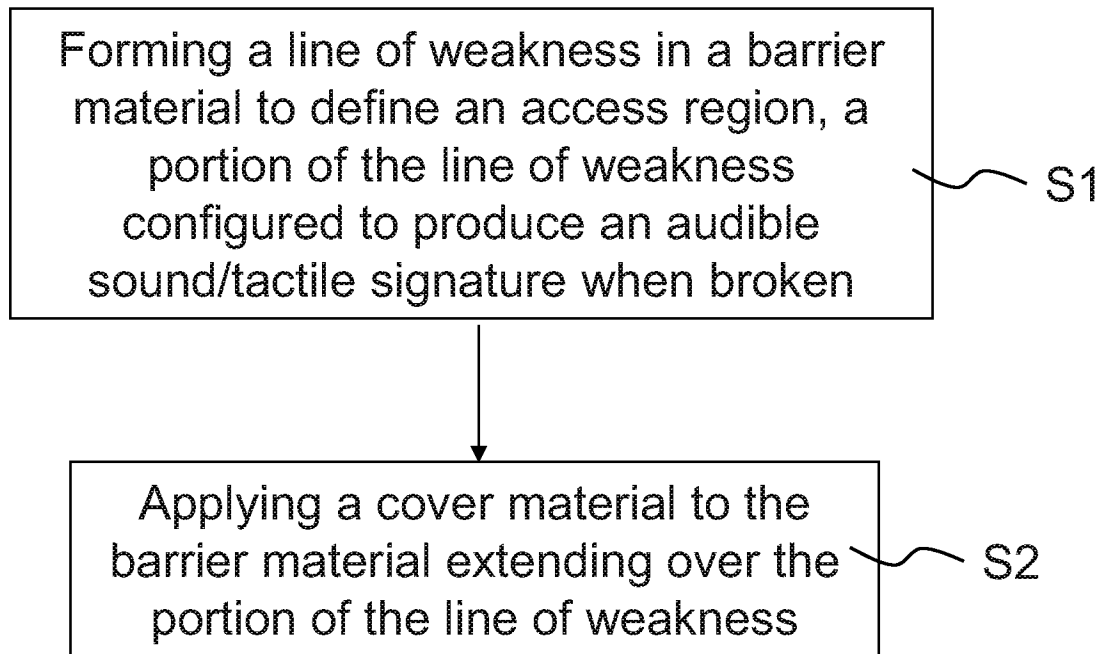


Figure 6

INTERNATIONAL SEARCH REPORT

International application No

PCT/GB2014/053676

A. CLASSIFICATION OF SUBJECT MATTER

INV. B65D75/58 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, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2010/147724 A1 (MITRA-SHAH UJJAINI [US] ET AL) 17 June 2010 (2010-06-17) paragraph [0001] - paragraph [0010]; figures 1,2,3, 7,12 paragraph [0132]	1-20
Y	US 4 512 478 A (KORTE RALPH J [US]) 23 April 1985 (1985-04-23) column 3, line 13 - line 35; figure 1	1-11,15, 17-20
Y	WO 98/22367 A1 (ROTHMANS INTERNATIONAL LTD [GB]; BRAY ANDREW JONATHAN [GB]; PARKER MIC) 28 May 1998 (1998-05-28) figures 1, 4	12-14,16
A	US 2013/177263 A1 (DUAN XINRONG [CN] ET AL) 11 July 2013 (2013-07-11) paragraph [0067]	7
	-/--	



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

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"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

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

13 February 2015

Date of mailing of the international search report

23/02/2015

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INTERNATIONAL SEARCH REPORT

International application No

PCT/GB2014/053676

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 2008/089309 A2 (WRIGLEY W M JUN CO [US]; MITRA-SHAH UJJAINI [US]; HERNANDEZ KATIE J [U] 24 July 2008 (2008-07-24) the whole document -----	1-20

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/GB2014/053676

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 2010147724	A1	17-06-2010	US 2010147724 A1	17-06-2010
			WO 2010068645 A1	17-06-2010

US 4512478	A	23-04-1985	NONE	

WO 9822367	A1	28-05-1998	AT 234242 T	15-03-2003
			AU 725278 B2	12-10-2000
			AU 5060298 A	10-06-1998
			BG 64122 B1	30-01-2004
			BG 103506 A	31-01-2000
			BR 9713382 A	21-03-2000
			CA 2270613 A1	28-05-1998
			CN 1237940 A	08-12-1999
			CZ 9901817 A3	14-02-2001
			DE 69719795 D1	17-04-2003
			DE 69719795 T2	23-10-2003
			DK 0944539 T3	14-07-2003
			EG 21616 A	31-12-2001
			EP 0944539 A1	29-09-1999
			ES 2190525 T3	01-08-2003
			HK 1022131 A1	13-06-2003
			HU 0000095 A2	28-06-2000
			IL 130017 A	01-12-2002
			JP 3587306 B2	10-11-2004
			JP 2001504069 A	27-03-2001
			KR 200000057200 A	15-09-2000
			NZ 335655 A	27-10-2000
			PL 333433 A1	06-12-1999
			PT 944539 E	31-07-2003
			TR 9901113 T2	22-11-1999
			US 6164444 A	26-12-2000
			WO 9822367 A1	28-05-1998

US 2013177263	A1	11-07-2013	NONE	

WO 2008089309	A2	24-07-2008	EP 2114777 A2	11-11-2009
			US 2010170941 A1	08-07-2010
			WO 2008089309 A2	24-07-2008
