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(54) **Cigarette pack**

(57) A cigarette pack comprises a box having a bottom face and a plurality of longitudinal faces, the longitudinal faces comprising a front face, a rear face, and first and second side faces connecting the front and rear faces and defining together with the bottom face an internal compartment for receiving a bundle of cigarettes. An openable lid comprises front face, a rear face, a top face and first and second side faces, said lid being hingedly connected on its rear face to the rear face of the box along a hinge line such that the lid is movable

with respect to the box about said hinge line between a closed position and an open position. An inner frame is positioned within the box and comprising at least first and second side walls positioned adjacent to the first and second longitudinal side faces and extending beyond top ends thereof into the lid when the lid is in a closed position, wherein said inner frame side walls are bent inwardly towards the interior of the internal compartment of the box and away from being parallel with first and second side faces of the lid in its closed position.

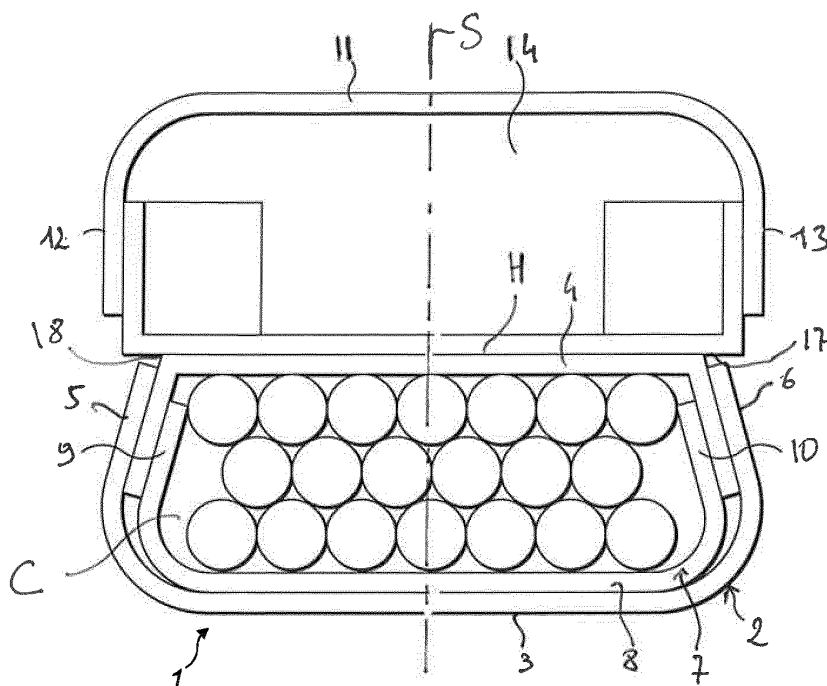


FIG. 3

Description

[0001] The present invention generally relates to the field of packaging for tobacco products. In particular, the present invention relates to a new type of cigarette pack, and a blank for forming the pack. Cigarette packs of a wide variety of constructions are well known. One particularly well known construction is a pack made of sturdy cardboard with a pronounced edge and comprising a hinged lid which opens from the top to allow a user access to the cigarettes inside.

[0002] In many cases such cardboard packs have an inner case as well as an outer shell to ensure sufficient rigidity, as well as to improve the aesthetic appearance of the pack. The inner shell extends into the region covered by the hinged lid to ensure rigidity of the pack and adequate closure of the pack when the lid is in the closed position.

[0003] However, whilst provision of such a pack with an inner frame has many benefits, it can cause problems. One particular problem is the tendency of the upper edges of the inner frame to engage with the hinged lid of the pack when it is being moved from an open to a closed position. This problem, often referred to as inner frame biting, occurs when the lid formed as part of the outer pack moves downwards towards the inside of the upper edge of the inner frame, rather than around its outer side. The lid can then move downwards and be restricted from closing properly by engagement with the inner frame. Such inner frame biting is often difficult to avoid and is frustrating to a user because pack closing becomes difficult, and once an inner frame bite has occurred once with a pack, the forcing outward of the inner frame means that it is even more likely to occur on subsequent opening and closing instances, as well as also likely to cause damage to the inner frame which is unsightly.

[0004] The present invention seeks to overcome this problem.

[0005] According to the present invention there is provided a cigarette pack comprising:

a box comprising a bottom face and a plurality of longitudinal faces, the longitudinal faces comprising a front face, a rear face, and first and second longitudinal side faces connecting the front and rear faces and defining together with the bottom face an internal compartment for receiving a bundle of cigarettes; an openable lid comprising a front face, a rear face, a top face and first and second side faces, said lid being hingedly connected on its rear face to the rear face of the box along a hinge line such that the lid is movable with respect to the box about said hinge line between a closed position wherein its front, rear and side faces are in planar alignment with the front and rear faces of the box and the internal compartment is closed, and an open position wherein the front and rear faces of the lid are misaligned with those of the box and the internal compartment is

open; and

an inner frame positioned within the box and comprising at least first and second side walls positioned adjacent to the first and second longitudinal side faces of the box and extending beyond top ends thereof into the lid when the lid is in a closed position, wherein said inner frame side walls are bent inwardly towards the interior of the internal compartment of the box and away from being parallel with the first and second sides faces of the lid when in its closed position.

[0006] With the cigarette pack for the present invention, as the side walls of the inner frame are bent inwardly as they extend towards the top face of the lid in the closed position they avoid engagement with the side faces of the lid such that inner frame biting during closure of the lid in use is avoided. The pack still retains, however, the rigidity of prior art packs by the ability to employ an inner frame.

[0007] Preferred embodiments of the pack of the invention comprise:

The length of the hinge line may be shorter than the length of bottom and top sides of both the front and rear faces

- The distance between longitudinal sides of the rear face from the bottom side of said rear face to the hinge line may vary, preferably decreasing, continuously or discontinuously between the length of said bottom side to the length of the hinge line

The distance between longitudinal sides of the rear face may vary linearly or non-linearly along the length of the pack.

The front and rear faces of the pack may be substantially planar.

- The front and rear faces of the pack may be connected to each other via the side faces such that they define right-angled, bevelled or rounded corners.

- The first and second walls of the inner frame may be bent towards a sagittal plane of the pack substantially perpendicular to the front or rear face of the box.

- The length of the hinge line may be between 0,2 to 5 mm shorter than the length (LB) of the bottom side of the rear face.

[0008] A blank for forming the pack according to the invention is also provided.

[0009] One example of the present invention will now be described with reference to the accompanying drawings, in which:

Figure 1 is a plan view of a conventional pack according to the present invention with its lid in an open position;

Figure 2 is a side view of a conventional cardboard cigarette pack with the lid in a partially closed configuration;

Figure 3 is a plan view of a pack according to the present invention with its lid in an open configuration;

Figure 4 is a rear partial cross-sectional view of a pack according to the present invention with the lid closed; and

Figure 5 is a view of a blank for making a pack according to the present invention.

[0010] Referring to Figure 1, a conventional cardboard cigarette pack 1 has an outer box 2 formed from a cardboard blank and comprising a bottom face (not shown) and parallel front face 3 and rear face 4 as well as longitudinal parallel side faces 5, 6. The front, rear and side faces 3, 4, 5, 6 of the box define together with the bottom face an internal compartment C adapted to receive a cigarette bundle as represented in figure 1. The pack 1 further comprises an inner frame 7 having front and side walls 8, 9, 10 glued to the inner surface of the front face 3 and side faces 5, 6 of the box 2 respectively.. The pack 1 has a lid 11 formed from the same cardboard blank as the box 2. The lid 11 is hingedly attached to the rear face 4 of the box 2 such that the lid 11 can be closed over an opening in the box 2 to form a closed pack. The lid 11 has side walls 12, 13 which, when the lid 1 is closed extend over and run parallel to the faces of the side walls 9, 10 of the inner frame 7. The side walls 9, 10 then act as a support to ensure that the pack 1 remains rigid and that the lid 11 does not move sideways when in a closed position. When closed the top face 14 of the lid 11 forms the top face of the box 2. In this example the pack 1 is shown having curved front corners 15, 16 and right-angled rear corners 17, 18. However, it will be appreciated that all of the corners of the pack 2 can be rounded or all could be right angled, or any combination of round, bevelled or right-angled corners.

[0011] Figure 2 shows a side view 2 of Figure 1 with the lid 11 in a partially closed position and in which the problem of inner frame biting referred to above is shown. Here the side wall 10 of the inner frame 7 can be seen as the side wall 13 of the lid 7 has passed inside the inner surface of the side walls 10 of the inner frame 7. This prevents proper closure of the lid 11, may deteriorate both the inner frame 7 and the lid 11 and is frustrating to a user.

[0012] Figure 3 shows a plan view of a pack 1 according to the present invention. Where components correspond to those of the prior art they have been numbered identically. As can be seen from Figure 3, the pack 1 of the present invention has a similar construction with an outer box 2 and inner frame 7. However, the pack 1 of the present invention is formed such that the side walls 9, 10 of the inner frame 7 are bent or curved inwardly

towards a sagittal plane S of the pack, as they extend in the direction of the top face 14 of the pack. The lid 11 however is formed in the same manner as the prior art. The curvature of the inner frame sidewalls 9, 10 does not have to be great, perhaps resulting only in an inward curvature from the base of 0.3 to 0.5mm in a conventional pack.

[0013] However, provision of this bending or curvature, which can be seen in the partial cross-section of Figure 3, ensures ease of closure of the lid 11, and retains the necessary rigidity by provision of the inner frame 7, but ensures that the problem of inner frame biting is overcome as the side walls 9, 10 of the inner frame 7 are far less likely to engage with the side walls 12, 13 of the lid 11.

[0014] As can be seen on figure 4, the bending or curvature of the inner frame's side walls 9,10 is forced by the box side walls 5, 6 urging it inwardly towards the top of the rear face 4 of the box 2. This is advantageously achieved by said rear face 4 being non-rectangular and more specifically by the hinge line H connecting the top part of the rear face 4 of the box 2 and the lid 11 of a shorter length L_H than the length L_B of the bottom side B of the rear face 4 as well as preferably of the bottom and top sides of the front face 3. Through this configuration of the box 2, the longitudinal side faces 5, 6 are urged away from being parallel to each other towards the sagittal plane S on the top rear end of the box 2, which mechanically urges the side walls 9, 10 of the inner frame 7 being attached to the inner surface of said side faces 5, 6 inwardly towards said sagittal plane S.

[0015] To that effect, the length L_H of the hinge is made sufficiently shorter than the length L_B of the bottom side. Advantageously, the length L_H of the hinge can only be of between 0,2 and 5 mm shorter than the length L_B of the bottom side of the rear face, and preferably between 0,4 and 2 mm shorter.

[0016] Preferably, the distance D_R between the rear corners 17, 18 defining the longitudinal sides of the rear face 4 of the box 2 varies, and more preferably decreases, continuously or discontinuously, linearly or non-linearly, from the bottom side B of the box 2 to the hinge line H between the length L_B of said bottom side B to the length L_H of the hinge line H.

[0017] Figure 5 shows a blank 20 which can be used to form the box of the pack 1 according to the present invention. The blank 20 has a box forming section 21 which can be folded and glued to form the box 2 of the pack 1 and a lid-forming section 29 to form the lid 11 of the pack 1.

[0018] The box forming section 21 comprises a first main panel 22 to form a front face 3 of the box 2 and a second main panel 23 to form a rear face 4 of the box 2. The first and second main panels 22, 23 are linked or connected to each other by means of a first intermediate panel 24 connected at first ends of the first and second main panels 22, 23 along parallel first and second folding lines l_1, l_2 . The first intermediate panel 24 forms the bottom face of the box 2 of the pack 1 upon construction of

the blank 20.

[0019] The box forming section 21 further comprises first and second counter panels 25, 26 connected on longitudinal sides of the first main panel 21 along third and fourth folding lines l_3 , l_4 . The third and fourth folding lines l_3 , l_4 form front corners of the box 2 of the pack and can be made of a single folding line or, as represented in Figure 5 of a plurality of creases allowing for the formation of rounded corners. Further third and fourth counter panels 27, 28 are connected on longitudinal sides of the second main panel 23 respectively along fifth and sixth folding lines l_5 , l_6 , which are preferably of single nature as represented in Figure 5 but can be multiple as for folding lines l_3 , l_4 .

[0020] The first and second counter panels 25, 26 and the third and fourth counter panels 27, 28 are arranged to form longitudinal side faces 12, 13 of the box 2 by superimposition and fastening, preferably by gluing, of counter panels 25, 26 on the counter panels 27, 28 upon construction of the box 2 to hold all panels of the box forming section 21 together and define an internal compartment to receive a cigarette bundle.

[0021] Preferably, the third and fourth counter panels 27, 28 are prolonged by flaps 24', 24" articulated along the second folding line l_2 and extending on sides of the first intermediate panel 24. These flaps 24', 24" serve as anchoring elements for the counter panels 27, 28 on the intermediate panel 24 upon construction of the box 2 in order to provide rigidity and structure to the box 2 at its bottom between front, rear, side and bottom faces.

[0022] The blank 20 further comprises a lid forming section 29 extending at a second end of the second main panel 23 and counter panels 27, 28. The lid forming section 29 comprises a second intermediate panel 30 to form a rear face of the lid 11, which is connected to a second end of the second main panel 23 along a hinge line H parallel to the first and second folding lines l_1 , l_2 . A top panel 31 extends from the second intermediate panel 30 to form the top face of the lid 11 and the pack 1. The top panel 31 is connected to the second intermediate panel 30 along a seventh folding line l_7 parallel to the hinge line H, and a front panel 32 to form a front face of the lid 11 is further connected to the top panel 31 along an eighth folding line l_8 parallel to the seventh hinge line l_7 . Preferably a front counter panel 33 articulated along a ninth folding line l_9 is also provided to reinforce the front face of the lid 11 once constructed and provide rigidity thereto. On the lateral sides of the second intermediate panel 30 are first and second lateral flaps 34, 35 foldable on sides of said second intermediate panel 30 and third and fourth lateral flaps 36, 37 foldable on sides of the front panel 32 are further provided to form side faces of the lid by superimposition and fastening (gluing) of the third and fourth flaps 36, 37 onto the first and second flaps 34, 35 respectively upon construction of the lid. Finally, foldable top flaps 31', 31" are also preferably provided on lateral sides of the top panel 31. These flaps 31', 31" serve, like the flaps 24', 24", as anchoring elements for the counter

panels 34, 35 on the second intermediate panel 30 upon construction of the box 2 in order to provide rigidity and structure to the lid 7 at its top between front, rear, side and top faces.

[0023] According to the invention, the blank 20 is such that the length L_H of the hinge line H is shorter than the length L_B of the second folding line l_2 between the second main panel 23 and the first intermediate panel 24. Consequently, the folding lines l_5 , l_6 of the counter panels 27, 28 are not formed parallel to each other but rather are inclined from the first intermediate panel 24 to the second intermediate panel 30. Accordingly, as the box 2 of the pack is formed these folding lines l_5 , l_6 ensure that the longitudinal side faces 12, 13 of the box 2, made by superimposition and gluing of counter panels 25, 26 on counter panels 27, 28 respectively urge the side walls 9, 10 of the inner frame 7 inwardly towards the interior of the internal compartment and the sagittal plane S of the pack 1 and away from being parallel to each other.

[0024] Preferably, the distance D_R between the fifth and sixth folding lines l_5 , l_6 varies, and more preferably decreases, continuously or discontinuously from the second folding line l_2 to the hinge line H between the length L_B of said second folding line to the length L_H of the hinge line.

Claims

1. A cigarette pack comprising:

a box having a bottom face and a plurality of longitudinal faces, the longitudinal faces comprising a front face, a rear face, and first and second side faces connecting the front and rear faces and defining together with the bottom face an internal compartment for receiving a bundle of cigarettes;
an openable lid comprising front face, a rear face, a top face and first and second side faces, said lid being hingedly connected on its rear face to the rear face of the box along a hinge line such that the lid is movable with respect to the box about said hinge line between a closed position and an open position; and
an inner frame positioned within the box and comprising at least first and second side walls positioned adjacent to the first and second longitudinal side faces and extending beyond top ends thereof into the lid when the lid is in a closed position, wherein said inner frame side walls are bent inwardly towards the interior of the internal compartment of the box and away from being parallel with first and second side faces of the lid in its closed position.

2. A pack according to claim 1, wherein the length (L_H) of the hinge line is shorter than the length (L_B) of

bottom and top sides of rear faces.

3. A pack according to claim 2, wherein the distance (D_R) between longitudinal sides of the rear face varies continuously from the bottom side of said rear face to the hinge line between the length (L_B) of said bottom side to the length (L_H) of the hinge line. 5
4. A pack according to claim 3, wherein the distance (D_R) between longitudinal sides of the rear face decreases from the bottom side of said rear face to the hinge line. 10
5. A pack according to claim 3 or claim 4, wherein the distance (D_R) between longitudinal sides of the rear face varies linearly. 15
6. A pack according to claim 3 or claim 4, wherein the distance (D_R) between longitudinal sides of the rear face varies non-linearly. 20
7. A pack according to claim 2, wherein the distance (D_R) between longitudinal sides of the rear face from the bottom side of said rear face to the hinge line varies discontinuously between the length (L_b) of said bottom side to the length (L_h) of the hinge line. 25
8. A pack according to any of claims 1 to 7, wherein the front and rear faces of the pack are substantially planar. 30
9. The pack of claim 1 or claim 2, wherein the front and rear faces of the pack are connected to each other via the side faces such that they define right-angled, bevelled or rounded corners. 35
10. The pack according to any preceding claim wherein the first and second walls of the inner frame are bent towards a sagittal plane substantially perpendicular to the front or rear face of the box. 40
11. The pack according to any of claims 2 to 10, wherein the length (L_H) of the hinge line is between 0,2 to 5 mm shorter than the length (L_B) of the bottom side of the rear face. 45
12. A blank for forming the box of the pack according to any of claims 2 to 11, comprising:
 - a first main panel (21) to form a front face of the box; 50
 - a second main panel (25) to form a rear face of the box;
 - a first intermediate panel (24) connected at first ends of said first and second main panels along parallel first and second folding lines (l_1 , l_2) to form a bottom face of the box; 55
 - first and second counter panels (22, 23) con-

nected on longitudinal sides of the first main panel along third and fourth folding lines (l_3 , l_4);

- third and fourth counter panels (26, 27) connected on longitudinal sides of the second main panel respectively along fifth and sixth folding lines (l_5 , l_6), wherein

- the first and second counter panels and the third and fourth counter panels are arranged to form longitudinal side faces of the box by superimposition and fastening of counter panels of the first main panel with those of the second main panel upon construction of the box;

- a second intermediate panel (28) forms a rear face of the lid and connected to a second end of the second main panel along a hinge line (H) parallel to the first and second folding lines (l_1 , l_2);

- a top panel (29) forms a top face of the lid connected to the second intermediate panel along a seventh folding line (l_7) parallel to the hinge line;

- a front panel (30) forms a front face of the lid connected to the top panel along an eighth folding line (l_8) parallel to the seventh hinge line (l_7); and

- first and second lateral flaps (34, 35) are foldable on sides of the second intermediate panel (28) and third and fourth lateral flaps (32, 33) foldable on sides of the front panel (30) to form side faces of the lid by superimposition and fastening of the third and fourth flaps onto the first and second flaps respectively upon construction of the box,

wherein the length (L_H) of the hinge line (H) is shorter than the length (L_B) of the second folding line (l_2) between the second main panel (25) and the first intermediate panel (24).

13. A blank according to claim 12, wherein the distance (D_R) between the fifth and sixth folding lines varies continuously from the second folding line to the hinge line between the length (L_B) of said second folding line to the length (L_H) of the hinge line.

14. A blank according to claim 12 or claim 13, wherein the distance (D_R) between the fifth and sixth folding lines decreases from the second folding line to the hinge line.

15. A blank according to claim 12, wherein the distance (D_R) between the fifth and sixth folding lines varies discontinuously from the second folding line to the hinge line between the length (L_B) of said second folding line to the length (L_H) of the hinge line.

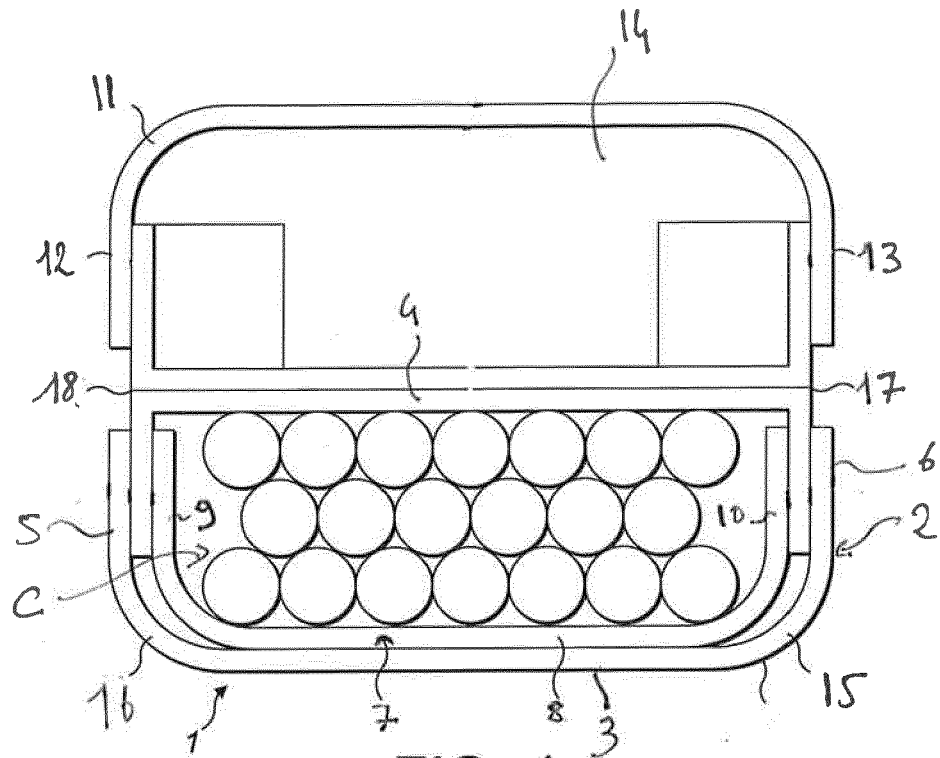


FIG. 1

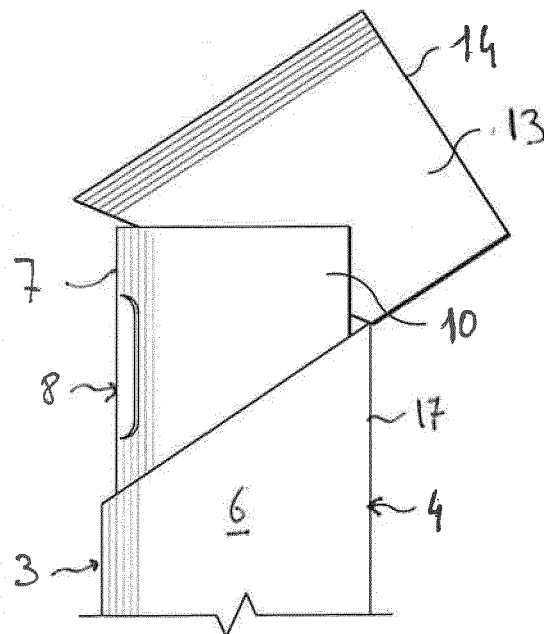


FIG. 2

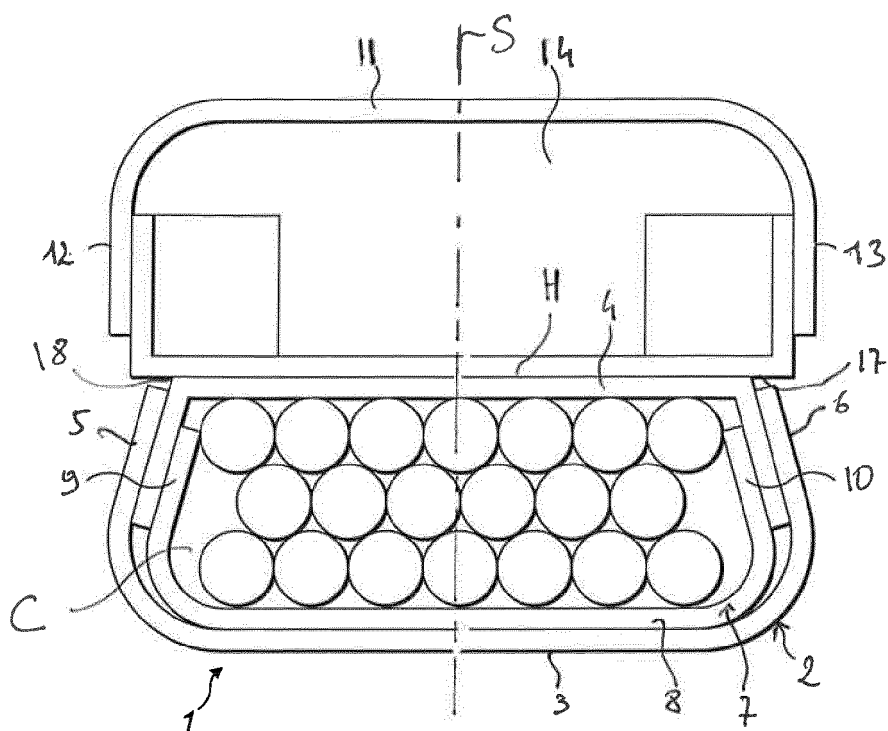


FIG. 3

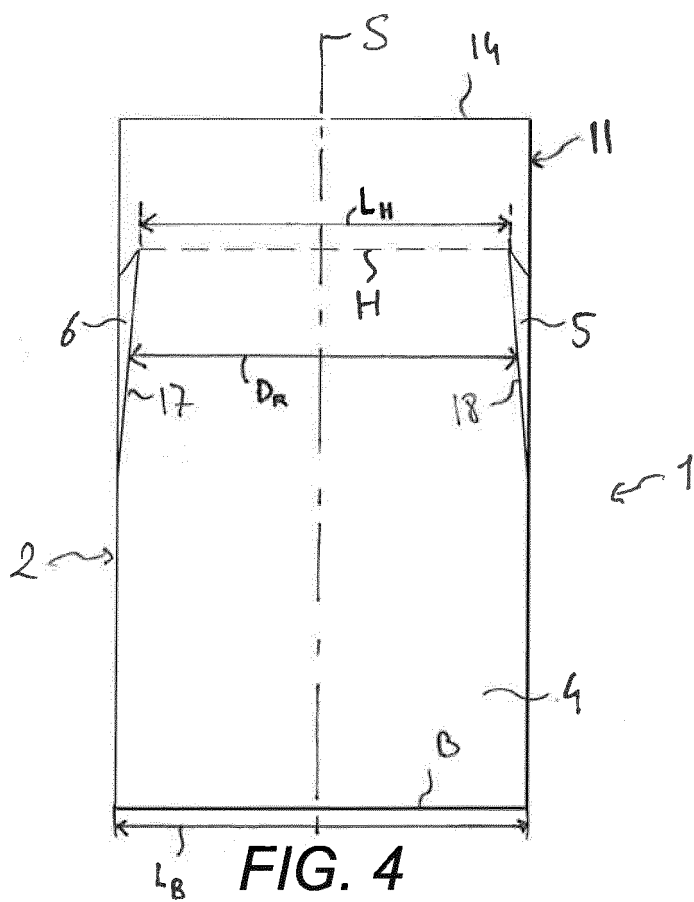


FIG. 4

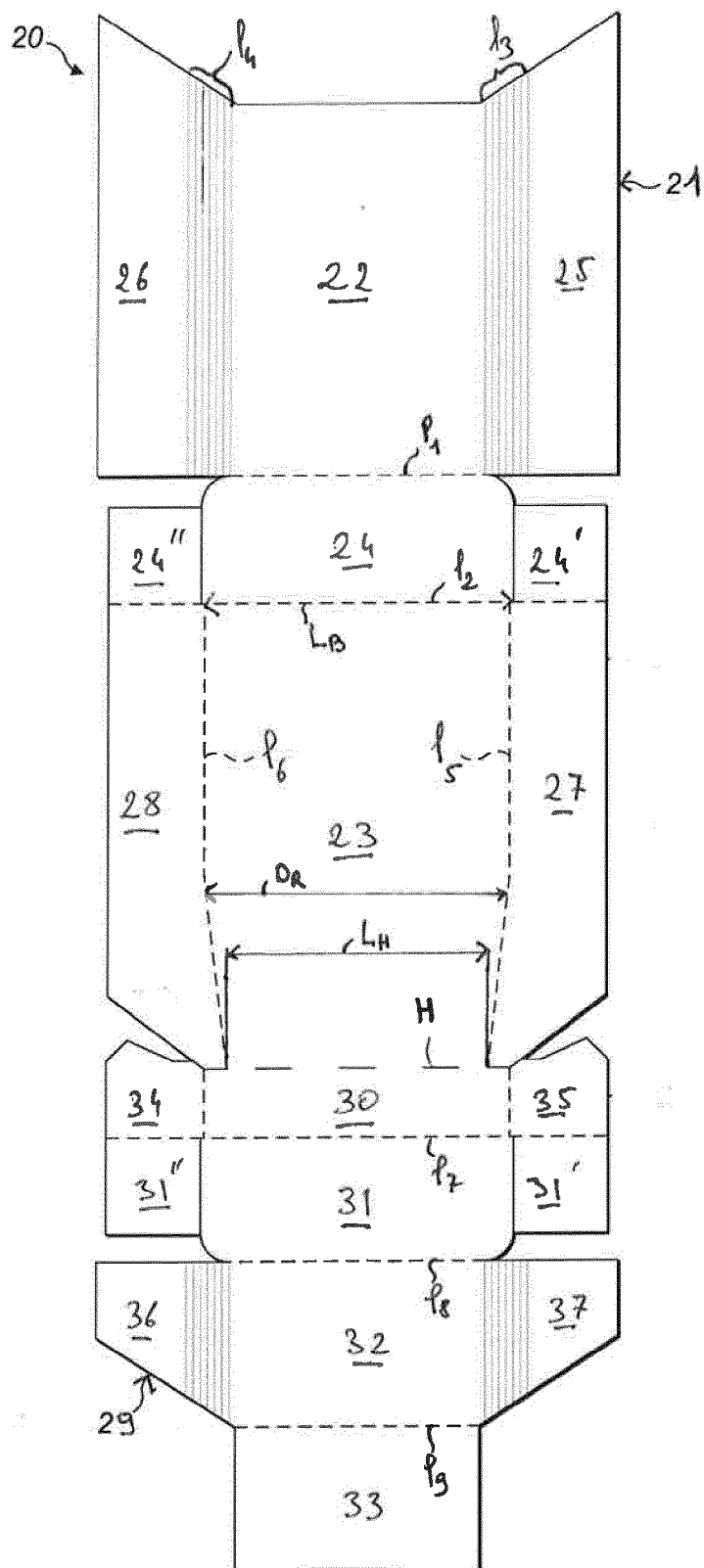


FIG. 5



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**ANNEX TO THE EUROPEAN SEARCH REPORT
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