

(19)



(11)

EP 1 919 795 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the grant of the patent:

27.09.2017 Bulletin 2017/39

(51) Int Cl.:

B65D 75/38 (2006.01) **B65D 75/58** (2006.01)
B65D 81/20 (2006.01) **B65B 1/02** (2006.01)
B65B 25/00 (2006.01) **B65B 31/04** (2006.01)

(21) Application number: **05756152.4**

(86) International application number:

PCT/DK2005/000453

(22) Date of filing: **01.07.2005**

(87) International publication number:

WO 2007/003182 (11.01.2007 Gazette 2007/02)

(54) BOX-SHAPED PACKAGE HAVING AN INNER AND OUTER PACKAGE

KASTENFÖRMIGE VERPACKUNG MIT EINER INNEN- UND EINER AUSSENVERPACKUNG
EMBALLAGE EN FORME DE BOÎTE AYANT UN EMBALLAGE INTERNE ET EXTERNE

(84) Designated Contracting States:

**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HU IE IS IT LI LT LU MC NL PL PT RO SE SI SK TR**

(74) Representative: **Chas. Hude A/S**

**H.C. Andersens Boulevard 33
1780 Copenhagen V (DK)**

(43) Date of publication of application:

14.05.2008 Bulletin 2008/20

(56) References cited:

**EP-A- 0 761 532 DE-A1- 4 000 857
DE-C- 910 397 DE-U1- 8 700 122
US-A- 2 679 349 US-A- 5 097 956**

(73) Proprietor: **Amtcor Flexibles Transpac N.V.**
1935 Zaventem (BE)

(72) Inventor: **MANK, Jochen**
D-49456 Bakum (DE)

EP 1 919 795 B1

Note: Within nine months of the publication of the mention of the grant of the European patent in the European Patent Bulletin, any person may give notice to the European Patent Office of opposition to that patent, in accordance with the Implementing Regulations. Notice of opposition shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

Description

Technical Field

[0001] The present invention relates to a box-shaped package assembly having a longitudinal direction and comprising:

- an inner package in which a product, in particular a granular product such as ground coffee, is hermetically vacuum-packed such that the inner package and the vacuum-packed product contained therein form a hard, box-shaped inner package unit, said inner package unit having the same longitudinal direction as the package assembly, a top, a bottom, and a circumferential lateral wall extending between the top and the bottom, and said inner package being formed from a first flexible packaging material, especially a film material with barrier properties, and
- an outer package made from a second flexible packaging material, in particular a paper material, and being arranged enclosingly adjacent the inner package unit, said second packaging material being wrapped around the inner package to form an overlap area extending in the longitudinal direction and in which opposed side edges of the packaging material overlap each other and are interconnected, said outer package having the same longitudinal direction as the package unit and provided with a top and bottom and a circumferential lateral wall.

Background Art

[0002] Packages of the above type are today widely used for packing ground coffee. The inner package, which has barrier properties, serves to retain the aroma of the coffee for long period of time until the package is opened. The inner vacuum package unit has, however, a slightly uneven surface structure caused especially by creasing in the inner package during vacuum packaging. This uneven surface structure is considered unappealing by many consumers.

[0003] An essential object of the outer package is thus to hide this uneven surface structure and to provide the package assembly with an appearance which is appealing to the consumers. An additional object of the outer package is that it can contain printed information about the packed product.

[0004] Access to the packed product or coffee is gained by opening both the outer package and the inner package. It is known to form the top of the outer package by means of folded-in end portions of the packaging material to enable opening of the outer package without using utensils, said folded-in portions are kept in place by means of a attached label. By removing the label, the folded-in portions are exposed and access to the inner package is obtained. This opening principle does, how-

ever, not always work satisfactorily in that it is not always possible to remove the adhered label in its entirety, whereby the top of the outer package remains at least partially closed. Further, DE 87 00 122 U1 discloses a box-shaped vacuum package as stated in the preamble to claim 1 comprising an inner hard box-shaped package and an outer loose package. The vacuum package is formed of two partially mutually connected film layers, the film layers being mutually sealed in sealing seam portions of the package.

[0005] Additionally, US 2 679 349 A discloses a box-shaped package comprising an inner package and an outer package. A circumferential wall of the outer package is provided with a tear strip defined by circumferential parallel weakening lines.

[0006] Document EP-A-761532 discloses a method as defined by the preamble of claim 9.

Disclosure of Invention

[0007] The object of the present invention is thus to provide a package assembly of the above type, wherein a simple and reliable opening of the outer package is ensured. In satisfaction of the above object the package assembly according to the invention is characterised in that the circumferential lateral wall of the outer package is provided with at least one circumferential weakening line and that the weakening line(s) reduce(s) the tear strength of the material by 50-90%, preferably by 60-90%. The weakening line provides such a weakening of the outer package that it is easily torn manually along said line. A sure and reliable opening of the outer package is thus obtained. The weakening line may be provided by perforating the material or by cutting partially through the material by means of a laser beam or a knife. when the weakening line is a perforation line including alternating perforations, ie. throughcuts, and connecting portions arranged with the same mutual spacing, the perforations constitute between 50 and 90% of the length of the perforation line(s). The perforation may constitute between 60 and 90%, and in practice excellent results have been obtained with a range between 70 and 80% when the outer package is made of a paper material.

[0008] According to the invention the at least one weakening line may extend rectilinearly in its entirety.

[0009] The at least one weakening line may at least in some areas, however, also be provided with a non-rectilinear extent. By providing the weakening line with a non-rectilinear extent at least in some areas, it is possible to divert the weakening line away from prints, such as eg. logos or other prints, on the outer package, thereby providing a high degree of freedom as to the graphic design of the outer package.

[0010] Furthermore, according to the invention the outer package may be provided with two mutually spaced apart, circumferential weakening lines. The two weakening lines may be mutually parallel.

[0011] The lines may, however, also extend non-mu-

tually parallel at least in some areas.

[0012] Moreover, according to the invention the two weakening lines may have a rectilinear extent in their entirety.

[0013] According to a preferred embodiment of the invention a gripping flap may be provided in an area defined by the two weakening lines. By gripping the gripping flap and pulling this in a circumferential direction, a strip of the outer package's circumferential wall is torn, said strip being defined by the two weakening lines. Easy access to the top of the inner package is thus obtained by removing the top of the outer package and the associated upper portion of the outer package's circumferential wall.

[0014] The gripping flap is advantageously provided in the longitudinal overlap area of the outer package, ie. in the outermost side edge of the packaging material.

[0015] Furthermore, according to the invention the longitudinal overlap area of the outer package may advantageously be provided adjacent a longitudinal corner of the package, thereby facilitating gripping of the gripping flap.

[0016] The weakening line(s) may advantageously be arranged adjacent the top of the outer package.

[0017] When - as it is preferred - a paper material is used for the outer package, the grammage thereof is less than 150 g/m², preferably 50-100 g/m². A grammage of between 65 and 95 g/m² is considered particularly advantageous, and in practice excellent results have been obtained with a grammage of 80 g/m².

[0018] The invention further relates to a method of producing a box-shaped package according to the invention and wherein:

- a first web-shaped, flexible packaging material is supplied in its longitudinal direction to a packaging manufacturing machine in which a sheet of the first web material is separated from the web and transversely of the web direction is wrapped around a mandrel with a rectangular cross-section, and opposed, overlapping side edges of the packaging sheet are mutually sealed along a longitudinal sealing seam to form a hose, which is closed by means of a transverse seal in an area of the hose extending beyond the free end of the mandrel, whereby a box-shaped inner package with a closed bottom and an open top is formed,
- a second web-shaped, flexible packaging material, preferably a paper material, is supplied in its longitudinal direction to the packaging manufacturing machine, in which a sheet of the second web material is separated and transversely of the web direction is wrapped around the mandrel on which the inner package is arranged, opposed overlapping side edges of the second packaging sheet are mutually sealed, eg. by gluing, by means of a longitudinal sealing seam to form a hose, an area of the hose extending beyond the bottom of the inner package and the

free end of the mandrel is folded inwards onto the bottom of the inner package and sealed, eg. by gluing, to form the bottom of the outer package;

- 5 - the formed outer and inner packages are removed from the mandrel and the desired product, especially a granular product such as ground coffee, is filled into the open inner package;
- 10 - the interior of the inner package with the product is subjected to vacuum in a vacuum chamber, and the inner package is closed by means of a transverse seal while being in the vacuum chamber, whereby a closed top is formed on the inner package,
- 15 - areas of the outer package extending beyond the closed top of the inner package are folded inward onto the top of the inner package and sealed, eg. by gluing, to form the top of the outer package.

[0019] Such a method of manufacturing of a box-shaped package assembly is for instance known from the company of Robert Bosch GmbH's leaflet called "PKD 3121 BV, PKD 3122 BV - Vacuum Package Makers for ground coffee".

[0020] The method according to the invention is characterised in that the second web-shaped packaging material supplied to the packaging manufacturing machine is provided with at least one weakening line extending transversely of the longitudinal direction of the second packaging material.

[0021] When manufacturing a package according to the invention by means of the above method according to the invention, the said at least one weakening line extending transversely of the longitudinal direction of the second packaging material provides the least one circumferential weakening line in the outer package's circumferential lateral wall.

[0022] The at least one transverse weakening line may extend rectilinearly in the width of the entire web. It may, however, also at least in some areas have a non-rectilinear course across the web.

[0023] Furthermore, the supplied second web-shaped packaging material may be provided with two mutually spaced apart weakening lines jointly defining a transverse strip-shaped area of the web. This strip-shaped area is intended to define a strip-shaped area on the circumferential wall of the outer package, said area being torn off for opening of the outer package as explained above.

[0024] In the said area defined by the weakening lines an end portion may be provided which serves to form a gripping flap.

[0025] The gripping flap is advantageously provided at one of the side edges of the second web-shaped packaging material.

Brief Description of the Drawing(s)

[0026] The invention is explained in detail below with reference to the drawings, in which

Fig. 1 is an isometric view of a first embodiment of a package assembly according to the invention,

Fig. 2 is a small-scale, isometric, exploded view of the package assembly according to the invention shown in Fig. 1,

Fig. 3 is a front view in the direction of the arrow III in Fig. 1 of a second embodiment of a package assembly according to the invention, and

Fig. 4 is a diagrammatic view of a method according to the invention for manufacturing the embodiment of a package assembly according to the invention shown in Figs. 1 and 2.

Best Mode(s) for Carrying out the Invention

[0027] The embodiment of a box-shaped package assembly 1 according to the invention shown in Figs. 1 and 2 comprises a hard, box-shaped inner package unit 2 and an outer package 3.

[0028] The inner package unit 2 is formed from a bag-shaped inner package 4 in which a preferably granular product such as ground coffee is hermetically vacuum-packed such that the inner package and the vacuum-packed product therein form the box-shaped, hard inner package unit 2 in a known manner. The inner package 4 is made from a flexible film material with barrier properties and as seen in Fig. 2 the package is provided with a longitudinal seal 5 extending in the longitudinal direction L, and by means of which opposed side edges of the packaging material are mutually sealed. At the top 6 of the inner package the inner packaging material is sealed inner face to inner face by means of a not-shown transverse seal. Top flaps 7, 8 formed in the inner packaging material due to the transverse seal are folded inward.

[0029] At its bottom 9 the inner package 4 is closed by means of a transverse seal 10. Bottom flaps 11, 12 formed due to the transverse seal 10 are folded inwards. A typical film material for the formation of the inner package 4 is a laminate comprising OPET-A1-PE, wherein OPET is oriented polyethylene terephthalate, A1 is aluminium, which may be an aluminium film or a metallisation, and PE is polyethylene. Numerous other laminates or film can, however, also be used depending on the packed product, as well-known to persons skilled in the art.

[0030] Referring now to Figs. 1 and 2, the outer package 3 is made from a second flexible packaging material, which in the present embodiment is a paper material, but which in principle also may be a flexible plastic film. The outer package 3 is arranged enclosingly adjacent the in-

ner package unit 2. To this end the second packaging material, ie. the paper material, is wrapped around the inner package unit 2 while an overlap area 13 is formed extending in the longitudinal direction L, confer Fig. 1. Opposed side edges of the packaging material are joined by gluing in the overlap area 13. In the shown embodiment the overlap area 13 is arranged adjacent a longitudinal corner 14 of the outer package 3 in such a manner that the edge 15 of the outermost side edge in the overlap area 13 is immediately adjacent the corner 14.

[0031] The outer package 3 has a circumferential wall 16 arranged adjacent a circumferential wall 17 of the inner package unit 2. Extension areas of the outer package's 3 circumferential wall 16 which initially extend beyond the bottom 9 of the inner package 4 are folded inwards and sealed together in a known manner, as shown by means of the bottom flaps 18, 19 so as to form a closed bottom 20 on the outer package. The bottom 20 is arranged closely adjacent the bottom 9 of the inner package. The bottom flap 19 is the outermost flap.

[0032] Correspondingly, extension areas of the outer package's 3 circumferential wall 16 are folded inwards against the top 6 of the inner package unit 2, as shown by means of the top flaps 21, 22. The top flaps 21, 22 are retained by means of a top label 23 to form the top 24 of the outer package. In this connection it should be noted that the top 24 of the outer package may also be closed by using the same closing principle as used for the bottom 20 of the outer package 3, ie. by means of interconnected flaps 18, 19. Similarly, the bottom 20 of the outer package may also be closed by means of the closing principle used for the top, ie. by means of an adhered top label 23.

[0033] Near the top 24 the circumferential wall 16 of the outer package 3 is provided with two circumferential, mutually parallel weakening lines 25, 26, which are illustrated in the drawings as perforation lines. The weakening lines 25, 26 jointly define a strip 27 having a gripping flap 28 in the overlap area 13. The gripping flap 28 is defined by a portion 29 of the free edge 15 of the overlap area and by two incisions 30, 31 being aligned with their respective weakening line 25, 26. By gripping and pulling the gripping flap 28 in the direction of the arrow P, the strip 27 is torn along the weakening lines 25, 26. A lower area of the outer package is thus separated from the upper area of the outer package, said upper area arranged above the uppermost weakening line 25. Removal of the said upper area provides access to the top 6 of the inner package unit 2. It is thus possible to open the inner package.

[0034] Fig. 3 shows another embodiment of a package assembly according to the invention, in which the circumferential wall 116 of the outer package 103 is provided with two circumferential and mutually parallel weakening lines 125, 126 having a non-rectilinear extent over a portion 132 of the length. The weakening lines 125, 126 are illustrated as perforation lines. This portion with a non-rectilinear extent is guided around a print 133, eg. a logo

or the like, on the outer package, said print otherwise being perforated at a rectilinear extent of the weakening lines 125, 126. The weakening lines 125, 126 define a strip 127. In an area being outside the overlap area 113 of the outer package 103, the strip 127 is provided with a gripping flap 128. The gripping flap 128 is defined by a transverse cut 134 through the strip 127 and two incisions 130, 131 extending from the transverse cut 134, said incisions 130, 131 being aligned with their respective weakening line 125, 126. In a manner corresponding to the manner described above with reference to the first embodiment shown in Figs. 1 and 2, the outer package 103 shown in Fig. 3 is opened by gripping and pulling the gripping flap 128 in the direction of the arrow P, whereby the strip 127 is torn off the circumferential wall 116 of the outer package. At the same time the printed area 133 is left untouched, the tearing of the strip 127 being effected outside the printed area 133.

[0035] As regards the course of the weakening lines 25, 26 and 125, 126, respectively, it should be noted that the weakening lines do not necessarily have a mutually parallel course as shown in Figs. 1-2 and 3, but have any desired course provided a strip is formed therebetween, said strip being tearable by pulling the gripping flap.

[0036] It should also be noted that the present invention further covers a situation where only one circumferential weakening line is provided, eg. the upper weakening line 25 in Figs. 1 and 2, or the upper weakening line 125 in Fig. 3. The outer package 3; 103 is thus opened by applying an upwardly directed force to the area of the outer package's circumferential wall 16; 116 arranged above the weakening line 25; 125, whereby the weakening line is torn and the upper portion of the outer package can be removed.

[0037] Reference is now made to Fig. 4, which is diagrammatic view of an embodiment of a method according to the invention for manufacturing the embodiment of a package assembly shown in Figs. 1 and 2.

[0038] A first web 40 of a first flexible packaging material for forming the inner package 4 is wound into a first reel 41. The first web 40 is supplied to the diagrammatic shown packaging manufacturing machine 42. In this machine a first sheet 43 is separated from the first web and wound transversely of web direction (shown by means of the arrow B1) around a mandrel 44 of a rectangular cross-section. The mandrel 44 is one of a number mandrels arranged in a rotatable mandrel wheel 45. The opposed side edges of the first packaging material sheet 43 are brought into engagement with each other and joint sealed along a longitudinal sealing seam 5 in a first sealing station 46. As a result a hose is formed of the first packaging material sheet 43. In a subsequent second sealing station 47 the hose is closed by means of a transverse seal 10 in an area of the hose extending beyond the free end of the mandrel 44. As a result a box-shaped inner package having a closed bottom and an open top is formed.

[0039] A second web 48 of a flexible packaging mate-

rial for forming the outer package 3 is wound into a second reel 49. The second web 48 is supplied to the packaging manufacturing machine 42 in the longitudinal direction of the second web, said direction shown by means of the arrow B2.

[0040] The second web is provided with two mutually parallel weakening lines 25, 26 extending across the longitudinal direction B2 of the second web and with a gripping flap 28 at one side edge of the web. A sheet 50 of the second web material 48 is separated from the second web in the packaging manufacturing machine 42. In the station 51, the separated sheet 50 is wound transversely of the web direction B2 around the mandrel on which the partially formed inner package is arranged. In the subsequent station 52 opposed, overlapping side edges of the second package sheet 50 are sealed by means of a longitudinal seal 13. The side edge containing the gripping flap 28 is arranged outermost in the overlap area, ie. in the sealing area. A hose is formed of second sheet 50 by means of the longitudinal seal. In stations 53-56 a portion of hose extending beyond the bottom of the inner package and the free end of the mandrel is folded inwards onto the bottom of the inner package and sealed to form the bottom of the outer package.

[0041] The partially formed package assembly is then removed from the mandrel and passed to a filling section 57, the assembly being made to stand on the bottom of the outer package at the same time. In the filling station 61 of the filling section 57 the desired product is filled into the open inner package. A check weighing is carried out and any topping up, if necessary. Further, non-acceptably filled package assemblies are discarded. After filling and the said check, the package assembly is passed to a vacuum section 58 in which the interior of the inner package containing the product is subjected to vacuum in a vacuum chamber. A closing of the inner package 4 also takes place in the vacuum chamber by means of transverse seal, whereby a closed top is provided on the inner package. This action takes place in a transverse sealing station 59.

[0042] The partially formed package assembly is then conveyed to a top sealing section 60 in which the areas of the outer package 3 extending beyond the closed top of the inner package is folded inwards onto the inner package. A top label 23 is placed on the folded-in portions of the outer package so as to retain these and for forming the top of the outer package.

[0043] The package assembly is thus completed and is led out of the packaging manufacturing machine 42.

[0044] It should be noted that in the just described embodiment, the second web material has been provided with the transverse weakening lines 25, 26 and the gripping flap 28 by the material supplier. It is, however, also envisaged that these may be provided in or at the packaging manufacturing machine, if desired.

[0045] List of reference numerals

1 package assembly

2	inner package unit	
3	outer package	
4	inner package	
L	longitudinal direction	
5	longitudinal seal	
6	top	
7, 8	top flap	
9	bottom	
10	transverse seal	
11, 12	bottom flap	
13	overlap area	
14	longitudinal corner	
15	edge	
16	circumferential wall of the outer package	
17	circumferential wall of the inner package	
18, 19	bottom flap	
20	bottom	
21, 22	top flap	
23	top label	
24	top of the outer package	
25, 26	weakening line	
27	strip	
28	gripping flap	
29	portion of the edge 15	
30, 31	incision	
40	first web	
41	first reel	
42	packaging manufacturing machine	
43	sheet of first web	
B1	longitudinal direction of the first web	
44	mandrel	
45	mandrel wheel	
46	first sealing station	
47	second sealing station	
48	second web	
49	second reel	
B2	longitudinal direction of the second web	
50	sheet of second web	
51	station	
52	subsequent station	
53, 54	station	
55, 56	station	
57	filling section	
58	vacuum section	
59	transverse sealing station	
60	top sealing station	
61	filling station	
P	direction	
103	outer package	
113	overlap area	
116	circumferential wall	
125, 126	weakening line	
127	strip	
128	gripping flap	
130, 131	incision	
132	portion of the length of the weakening lines	
133	print	

134 transverse cut

Claims

5

1. Box-shaped package assembly (1) having a longitudinal direction (L) and comprising:

10

- an inner package (4) in which a product, in particular a granular product such as ground coffee, is hermetically vacuum-packed such that the inner package (4) and the vacuum-packed product contained therein form a hard, box-shaped inner package unit (2), said inner package unit (2) having the same longitudinal direction as the package assembly, a top (8), a bottom (9), and a circumferential lateral wall (17) extending between the top and the bottom, said inner package (4) being made from a first flexible packaging material, especially a film material with barrier properties, and

20

- an outer package (3) made from a second flexible packaging material, in particular a paper material, and being arranged enclosingly adjacent the inner package unit (2), said second packaging material being wrapped around the inner package (4) to form an overlap area (13) extending in the longitudinal direction and in which opposed side edges of the packaging material overlap each other and are interconnected, said outer package (3) having the same longitudinal direction as the package unit and provided with a top (24), a bottom (20) and a circumferential lateral wall (16),

25

30

characterised in that the circumferential wall (16) of the outer package (3) is provided with at least one circumferential weakening line (25, 26; 125, 126) and that the weakening line(s) reduce(s) the tear strength by 50-90%, preferably by 60-90%.

35

40

2. Package assembly according to claim 1, **characterised in that** the at least one weakening line (25, 26) extend rectilinearly over its entirety.

45

3. Package assembly according to claim 1, **characterised in that** the outer package (3) is provided with two mutually spaced apart, circumferential weakening lines (25, 26; 125, 126).

50

4. Package assembly according to claim 3, **characterised in that** the two weakening lines (25, 26; 125, 126) are mutually parallel.

55

5. Package assembly according to claim 3 or 4, **characterised in that** the two weakening lines (25, 26) have a rectilinear extent in their entirety.

6. Package assembly according to one or more of the claims 3 - 5, **characterised in that** a gripping flap (28; 128) is formed in an area defined by the two weakening lines (25, 26; 125, 126).
7. Package assembly according to claim 6, **characterised in that** the gripping flap (28) is provided in the longitudinal overlap area (13) of the outer package (3).
8. Package assembly according to one or more of the preceding claims, **characterised in that** the packaging material of the outer package (3) is a paper material with a grammage of less than 150 g/m², preferably 50-100 g/m² and most preferably 65-95 g/m².
9. Method of producing a box-shaped package assembly (1) according to one or more of the preceding claims, wherein a first web-shaped, flexible packaging material (40) in its longitudinal direction is supplied to a packaging manufacturing machine (42), in which a first sheet (43) of the first web material is separated from the web and transversely of the web direction (B1) is wound around a mandrel (44) of a rectangular cross-section, opposed overlapping side edges of the packaging sheet of the first web material being mutually sealed along a longitudinal sealing seam to form a hose, which is closed by means of a transverse seal (10) in a portion of the hose extending beyond a free end of the mandrel (44), whereby a box-shaped inner package having a closed bottom and an open top is formed, **characterised in that**
- a second web-shaped, flexible packaging material (48), preferably a paper material, is supplied in its longitudinal direction (B2) to the packaging manufacturing machine (42), in which a sheet (50) of the second web material is separated and transversely of the web direction (B2) is wound around the mandrel (44) on which the inner package is arranged, opposed overlapping side edges of the second packaging sheet (50) are mutually sealed, eg. by gluing, by means of a longitudinal sealing to form a hose, an area of the hose extending beyond the bottom of the inner package and the free end of the mandrel is folded inward onto the bottom of the inner package and sealed, eg. by gluing, to form the bottom of the outer package,
 - the formed outer and inner packages are removed from the mandrel (44) and the desired product, especially a granular product such as ground coffee, is filled into the open inner package,
 - the interior of the inner package containing the product is subjected to vacuum in a vacuum

chamber, and the inner package is closed by means of a transverse seal while being in the vacuum chamber, whereby a closed top is formed on the inner package, and

- the areas of the outer package extending beyond the closed top of the inner package are folded inward onto the top of the inner package and sealed, eg. by gluing, to form the top of the outer package,

- the second web material (48) supplied to the packaging manufacturing machine (42) is provided with at least one weakening line (25, 26) extending transversely of the longitudinal direction (B2) of the second web material.

Patentansprüche

1. Eine kastenförmige Verpackungsanordnung (1) mit einer Längsrichtung (L) und umfassend:

- eine innere Verpackung (4), in der ein Produkt, insbesondere ein körniges Produkt wie gemahlener Kaffee, hermetisch vakuumverpackt ist, so dass die innere Verpackung (4) und das darin enthaltene vakuumverpackte Produkt eine harte, kastenförmige innere Verpackungseinheit (2) bilden, wobei die innere Verpackungseinheit (2) die gleiche Längsrichtung wie die Verpackungsanordnung, eine Oberseite (8), einen Boden (9) und eine umlaufende Seitenwand (17) aufweist, die sich zwischen der Oberseite und der Unterseite erstreckt, wobei die innere Verpackung (4) aus einem ersten flexiblen Verpackungsmaterial, insbesondere einem Folienmaterial mit Barriereeigenschaften, gemacht ist, und

- einer äußeren Verpackung (3), die aus einem zweiten flexiblen Verpackungsmaterial, insbesondere Papiermaterial, gemacht ist und der inneren Verpackungseinheit (2) umschließend und anliegend angeordnet ist, wobei das zweite Verpackungsmaterial um die innere Verpackung (4) gewickelt ist, um einen sich überlappenden Bereich (13) zu bilden, der sich in Längsrichtung erstreckt, und in dem sich gegenüberliegende Seitenkanten des Verpackungsmaterials einander überlappen und miteinander verbunden sind, wobei die äußere Verpackung (3) die gleiche Längsrichtung wie die Verpackungseinheit aufweist und mit einer Oberseite (24), einem Boden (20) und einer umlaufenden Seitenwand (16) versehen ist,

dadurch gekennzeichnet, dass die umlaufende Seitenwand (16) der äußeren Verpackung (3) mit mindestens einer umlaufenden Schwächungslinie (25, 26; 125, 126) versehen ist und dass die Schwä-

chungslinie(n) die Reißfestigkeit um 50-90%, vorzugsweise 60-90% reduziert/-en.

2. Die Verpackungsanordnung von Anspruch 1, **dadurch gekennzeichnet, dass** die mindestens eine Schwächungslinie (25, 26) geradlinig über ihre Gesamtheit verläuft. 5
3. Die Verpackungsanordnung von Anspruch 1, **dadurch gekennzeichnet, dass** die äußere Verpackung (3) mit zwei voneinander beabstandeten, umlaufenden Schwächungslinien (25, 26; 125, 126) versehen ist. 10
4. Die Verpackungsanordnung von Anspruch 3, **dadurch gekennzeichnet, dass** die zwei Schwächungslinien (25, 26; 125, 126) zueinander parallel sind. 15
5. Die Verpackungsanordnung von Anspruch 3 oder 4, **dadurch gekennzeichnet, dass** die beiden Schwächungslinien (25, 26) in ihrer Gesamtheit geradlinig ausgebildet sind. 20
6. Die Verpackungsanordnung von einem oder mehreren der Ansprüche 3 bis 5, **dadurch gekennzeichnet, dass** in einem von den beiden Schwächungslinien (25, 26; 125, 126) definierten Bereich eine Greifklappe (28; 128) ausgebildet ist. 25
30
7. Die Verpackungsanordnung von Anspruch 6, **dadurch gekennzeichnet, dass** die Greifklappe (28) in dem sich in Längsrichtung verlaufenden überlappenden Bereich (13) der äußeren Verpackung (3) bereitgestellt ist. 35
8. Die Verpackungsanordnung von einem oder mehreren der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** das Verpackungsmaterial der äußeren Verpackung (3) ein Papiermaterial mit einer Grammatur von weniger als 150 g/m², vorzugsweise 50-100 g/m² und am meisten bevorzugt 65-95 g/m² ist. 40
9. Ein Verfahren zur Herstellung einer kastenförmigen Verpackungsanordnung (1) nach einem oder mehreren der vorhergehenden Ansprüche, bei der ein erstes bahnförmiges, flexibles Verpackungsmaterial (40) in seiner Längsrichtung einer Verpackungsherstellungsmaschine (42) zugeführt wird, in der ein erster Bogen (43) des ersten Bahnmaterials von der Bahn getrennt und quer zur Bahnrichtung (B1) um einen Dorn (44) mit rechteckigem Querschnitt gewickelt wird, gegenüberliegende überlappende Seitenkanten des Verpackungsbogens des ersten Bahnmaterials entlang einer Längsverschlussnaht gegenseitig versiegelt werden, um einen Schlauch zu bilden, der mittels einer Querdichtung (10) in ei-

nem Bereich des Schlauches verschlossen wird, der sich über ein freies Ende des Dorns (44) hinaus erstreckt, wodurch eine kastenförmige innere Verpackung mit einem geschlossenen Boden und einer offenen Oberseite ausgebildet wird, **dadurch charakterisiert, dass**

- ein zweites bahnförmiges, flexibles Verpackungsmaterial (48), vorzugsweise ein Papiermaterial, der Verpackungsherstellungsmaschine (42) in ihrer Längsrichtung (B2) zugeführt wird, in der eine Bahn (50) des zweiten Bahnmaterials getrennt und quer zur Bahnrichtung (B2) um den Dorn (44), auf dem die innere Verpackung angeordnet ist, gewickelt wird, gegenüberliegende überlappende Seitenkanten der zweiten Verpackungsfolie (50) gegenseitig, z.B. durch Verkleben, mittels einer Längsversiegelung zur Bildung eines Schlauches versiegelt werden, ein Bereich des Schlauches, der sich über den Boden der inneren Verpackung hinaus erstreckt und das freie Ende des Dorns nach innen auf den Boden der inneren Verpackung gefaltet und versiegelt wird, z.B. durch Verkleben, um den Boden der äußeren Verpackung zu bilden,
- die gebildete äußere und innere Verpackung vom Dorn (44) entfernt werden und das gewünschte Produkt, insbesondere ein körniges Produkt, wie z.B. gemahlener Kaffee, in die offene innere Verpackung gefüllt wird,
- das Innere der inneren Verpackung, das das Produkt enthält, einem Vakuum in einer Vakuumkammer unterzogen wird, und die innere Verpackung, während sie sich in der Vakuumkammer befindet, durch eine Querversiegelung verschlossen wird, wodurch eine geschlossene Oberseite auf der inneren Verpackung gebildet wird, und
- die Bereiche der äußeren Verpackung, die sich über die geschlossene Oberseite der inneren Verpackung hinaus erstrecken, nach innen auf die Oberseite der inneren Verpackung gefaltet und versiegelt werden, z.B. durch Kleben, um die Oberseite der äußeren Verpackung zu bilden,
- das zweite der Verpackungsmaschine (42) zugeführte Bahnmaterial (48) mit mindestens einer sich quer zur Längsrichtung (B2) des zweiten Bahnmaterials erstreckenden Schwächungslinie (25, 26) versehen ist.

Revendications

1. Ensemble d'emballage en forme de boîte (1) ayant une direction longitudinale (L) et comprenant :
- un emballage intérieur (4) dans lequel un pro-

- duit, en particulier un produit granulaire tel que du café moulu, est emballé hermétiquement sous vide de sorte que l'emballage intérieur (4) et le produit emballé sous vide contenu à l'intérieur forment une unité d'emballage intérieur dure en forme de boîte (2), ladite unité d'emballage intérieur (2) ayant la même direction longitudinale que l'ensemble d'emballage, une partie supérieure (8), une partie inférieure (9) et une paroi latérale circonférentielle (17) s'étendant entre la partie supérieure et la partie inférieure, ledit emballage intérieur (4) étant constitué d'un premier matériau d'emballage flexible, en particulier un matériau de film ayant des propriétés de barrière, et
- un emballage extérieur (3) constitué d'un second matériau d'emballage flexible, en particulier un matériau de papier, et étant disposé en enfermant de manière adjacente l'unité d'emballage intérieur (2), ledit second matériau d'emballage étant enroulé autour de l'emballage intérieur (4) pour former une zone de chevauchement (13) s'étendant dans la direction longitudinale et dans lequel les bords latéraux opposés du matériau d'emballage se chevauchent l'un l'autre et sont interconnectés, ledit emballage extérieur (3) ayant la même direction longitudinale que l'unité d'emballage et étant muni d'une partie supérieure (24), d'une partie inférieure (20) et d'une paroi latérale circonférentielle (16), **caractérisé en ce que** la paroi circonférentielle (16) de l'emballage extérieur (3) est munie d'au moins une ligne de faiblesse circonférentielle (25, 26 ; 125, 126) et que la ou les lignes de faiblesse réduisent la résistance à la déchirure de 50-90 %, de préférence de 60-90 %.
2. Ensemble d'emballage selon la revendication 1, **caractérisé en ce que** la, au moins une, ligne de faiblesse (25, 26) s'étend de manière rectiligne sur sa totalité.
 3. Ensemble d'emballage selon la revendication 1, **caractérisé en ce que** l'emballage extérieur (3) est muni de deux lignes de faiblesse circonférentielles mutuellement espacées (25, 26 ; 125, 126).
 4. Ensemble d'emballage selon la revendication 3, **caractérisé en ce que** les deux lignes de faiblesse (25, 26 ; 125, 126) sont parallèles entre elles.
 5. Ensemble d'emballage selon la revendication 3 ou 4, **caractérisé en ce que** les deux lignes de faiblesse (25, 26) ont une étendue rectiligne sur leur totalité.
 6. Ensemble d'emballage selon l'une ou plusieurs des revendications 3 - 5, **caractérisé en ce qu'un** rabat de préhension (28 ; 128) est formé dans une zone définie par les deux lignes de faiblesse (25, 26 ; 125, 126).
 7. Ensemble d'emballage selon la revendication 6, **caractérisé en ce que** le rabat de préhension (28) est disposé dans la zone de chevauchement longitudinale (13) de l'emballage extérieur (3).
 8. Ensemble d'emballage selon l'une ou plusieurs des revendications précédentes, **caractérisé en ce que** le matériau d'emballage de l'emballage extérieur (3) est un matériau de papier d'un grammage inférieur à 150 g/m², de préférence 50-100 g/m² et plus préférentiellement 65-95 g/m².
 9. Procédé de production d'un ensemble d'emballage en forme de boîte (1) selon l'une ou plusieurs des revendications précédentes, dans lequel un premier matériau d'emballage flexible en forme de bande (40) dans sa direction longitudinale est fourni à une machine de fabrication d'emballage (42), dans laquelle une première feuille (43) du premier matériau en bande est séparée de la bande et transversalement à la direction de la bande (B1) est enroulée autour d'un mandrin (44) de coupe transversale rectangulaire, des bords latéraux opposés de la feuille d'emballage du premier matériau en bande se chevauchant étant mutuellement scellés le long d'un joint d'étanchéité longitudinal pour former un tuyau qui est fermé au moyen d'un joint transversal (10) dans une partie du tuyau s'étendant au-delà d'une extrémité libre du mandrin (44), de sorte qu'un emballage intérieur en forme de boîte ayant une partie inférieure fermée et une partie supérieure ouverte est formé, **caractérisé en ce que**
 - un second matériau d'emballage flexible en forme de bande (48), de préférence un matériau de papier, est fourni dans sa direction longitudinale (B2) à la machine de fabrication d'emballage (42), dans laquelle une feuille (50) du second matériau en bande est séparée et transversalement à la direction de bande (B2) est enroulée autour du mandrin (44) sur lequel est disposé l'emballage intérieur, les bords latéraux opposés se chevauchant de la seconde feuille d'emballage (50) sont mutuellement scellés, par exemple par collage, au moyen d'un joint d'étanchéité longitudinal pour former un tuyau, une zone du tuyau s'étendant au-delà de la partie inférieure de l'emballage intérieur et l'extrémité libre du mandrin est pliée vers l'intérieur sur la partie inférieure de l'emballage intérieur et scellée, par exemple par collage, pour former la partie inférieure de l'emballage extérieur,
 - les emballages extérieur et intérieur formés sont retirés du mandrin (44) et le produit voulu,

en particulier un produit granulaire tel que du café moulu, est rempli dans l'emballage intérieur ouvert,

- l'intérieur de l'emballage intérieur contenant le produit est soumis au vide dans une chambre à vide, et l'emballage intérieur est fermé au moyen d'un joint transversal tout en étant dans la chambre à vide, de sorte qu'une partie supérieure fermée est formée sur l'emballage intérieur, et
- les zones de l'emballage extérieur s'étendant au-delà de la partie supérieure fermée de l'emballage intérieur sont pliées vers l'intérieur sur la partie supérieure de l'emballage intérieur et scellées, par exemple par collage, pour former la partie supérieure de l'emballage extérieur,

le second matériau en bande (48) fourni à la machine de fabrication d'emballage (42) est muni d'au moins une ligne de faiblesse (25, 26) s'étendant transversalement à la direction longitudinale (B2) du second matériau en bande.

25

30

35

40

45

50

55

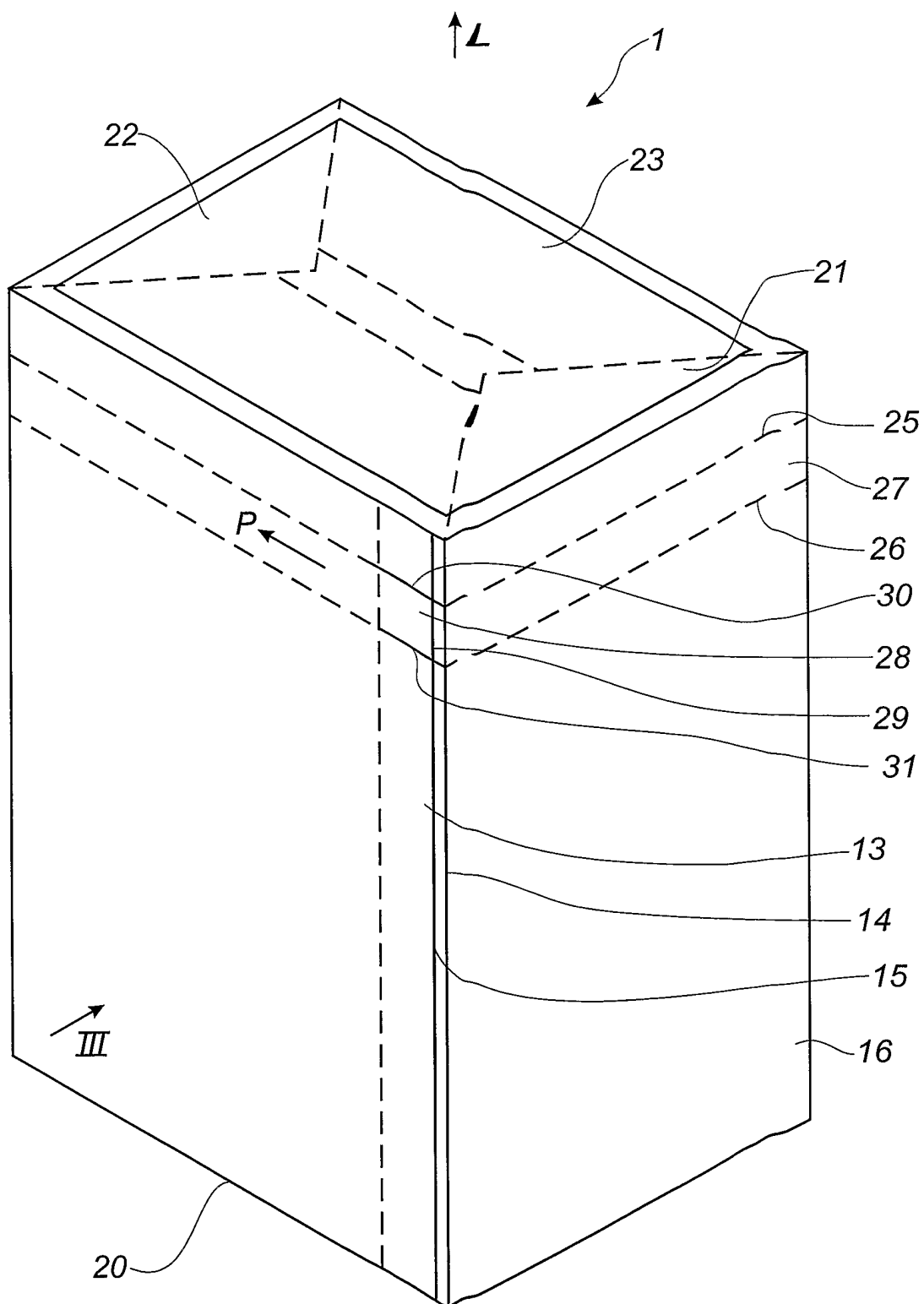


Fig. 1

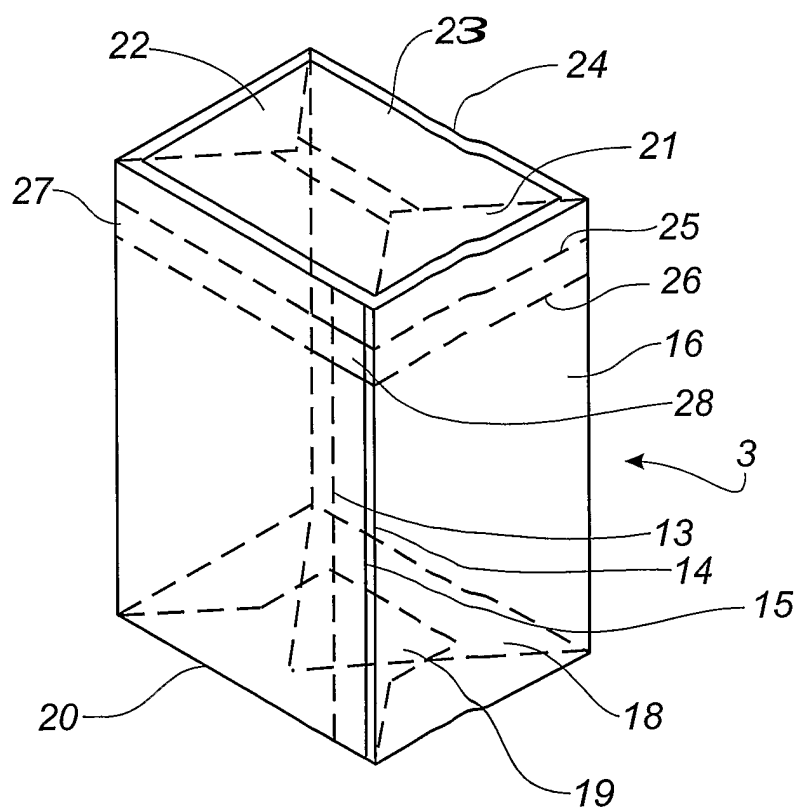
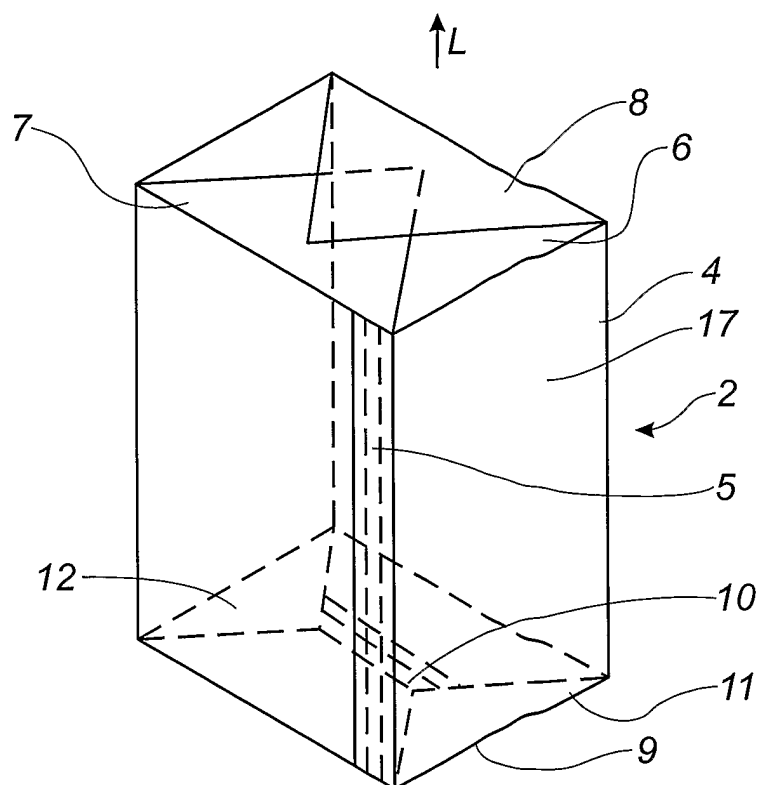


Fig. 2

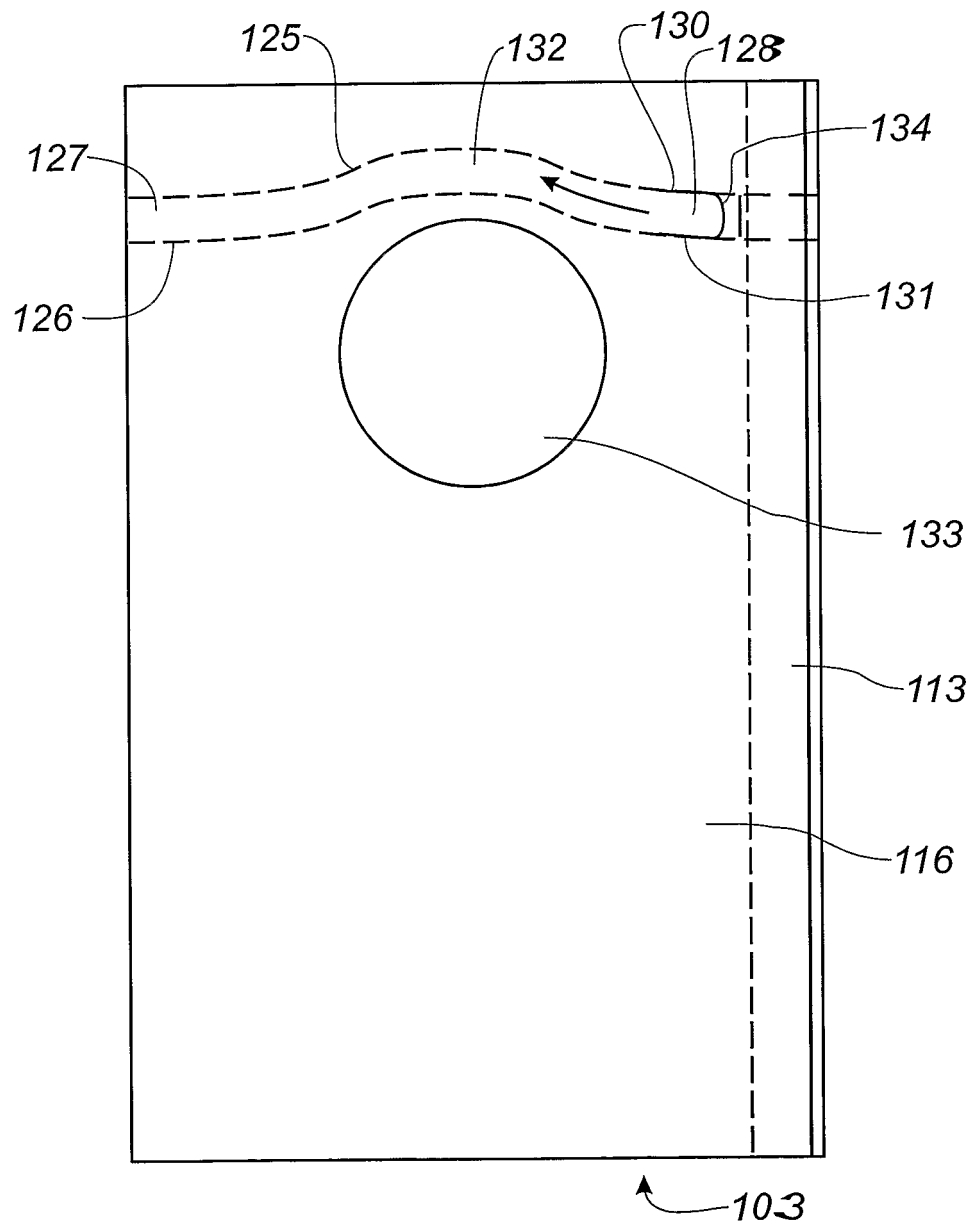


Fig. 3

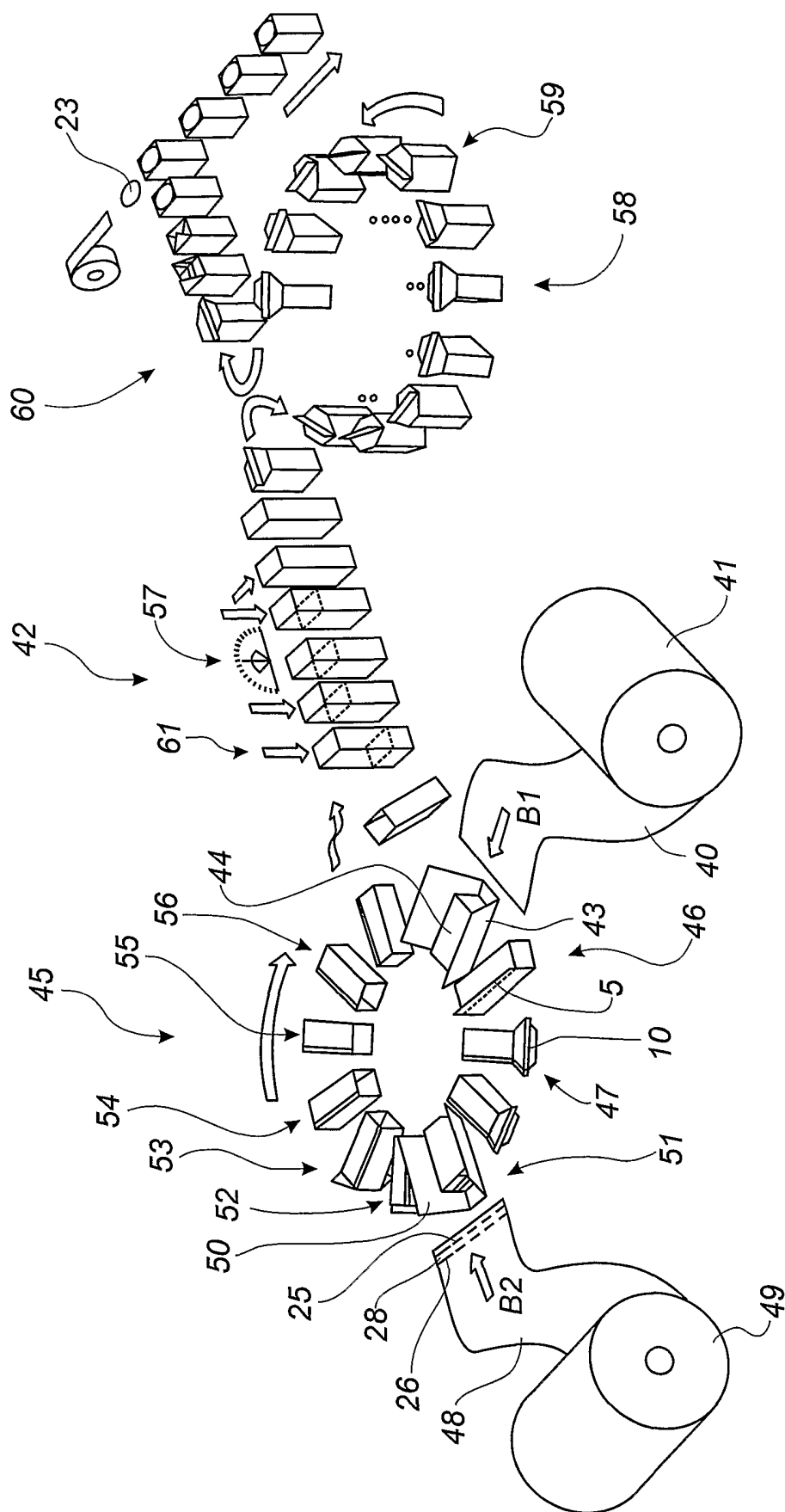


Fig. 4

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- DE 8700122 U1 [0004]
- US 2679349 A [0005]
- EP 761532 A [0006]