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**(54) Carton with locking means and blank therefor**

Karton mit Verspermöglichkeiten und Rohling dafür

Carton avec des moyens de verrouillage et découpe associée

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## Description

### Field of the Invention

**[0001]** The present invention relates to cartons for holding articles, and more specifically to locking means for ensuring the same is kept in a closed condition. More specifically, though not exclusively, the invention relates to a carton having a foldable closure means defined within which is an extendible handle and which further comprises a locking means for holding said closure means in a closed configuration resiliently yet providing augmented means for releasing said closing means.

### Background of the Invention

**[0002]** Cartons in the prior art provide locking means that restrict movement of a closing portion in both a forward and backward direction. Such locking means is denoted in the art by the phrase "heel and toe" locking arrangements. However, by virtue of the intended arrangement of the heel and toe portions of the locking means, such arrangements are inherently difficult to open once the closure has been effected.

**[0003]** International Patent No. WO 2006/089305 discloses just such a carton, provided with a heel and toe locking arrangement, for maintaining a closure in a closed configuration. However the locking arrangement is difficult to open by the user owing to the fact that there are few edges of the locking means that may be accessed by the user once it has been closed.

**[0004]** US Patent Number 5,311,994 discloses a carton having a locking arrangement that provides a pull tab that can be gripped by the user to disengage the arrangement by facilitating tearing thereof.

**[0005]** It is also known from the art to provide cartons having one or more handle members for carrying the carton once filled. Normally such handle members comprise apertures formed within one or more side walls and/or top walls of the carrier, which accept insertion of the user's fingers such that the carton may be lifted. Such arrangements require that the carton provides a volume of dead space on the interior side of the hand aperture, to accommodate the user's fingers when inserted. However there is a need for a handle member arrangement which allows the user to carry the carton comfortably whilst not requiring such dead volume to be present. It would be therefore advantageous if there were a handle member which could be extended to a position of use from a retracted position such that a suitable volume beneath the handle member could automatically be created without requiring the void of dead space to be present within the carton. This would mean that the carton size could be minimised, and thus have beneficial cost saving and storage requirements.

**[0006]** The present invention seeks to overcome or at least mitigate the above identified disadvantages of the prior art.

## Summary of the Invention

**[0007]** A first aspect of the invention provides a locking arrangement for maintaining a carton in a closed configuration, which locking arrangement comprises a first part and a second part, the first part having a primary panel comprising two or more protrusions, the second part having formed therein an aperture having first and second spaced opposing edges, the two or more protrusions being engageable with the first and second edges of the aperture, and characterised by the first part further comprising a pull tab that extends from a free end of the primary panel and that is grippable by a user such that a force may be applied to the first part to sufficiently deform either or both the first or second edge of the aperture and/or either of a first or second protrusion of said two or more protrusions of the first part, to permit the first part to move relative to the second part, and thereby be disengageable therefrom.

**[0008]** Preferably, the free end of the primary panel is furthest from an edge by which the primary panel is connectable to a carton.

**[0009]** Preferably, the pull tab facilitates a reduction in tearing of the first and/or second parts, during disengagement thereof, when compared to the disengagement of a locking arrangement not comprising such a pull tab.

**[0010]** Preferably, a first of said two or more protrusions is engageable with the first edge of the aperture to restrict movement, in a first direction, of the first part relative to the second part, and wherein a second of said two or more protrusions is engageable with the second edge of the aperture to restrict movement of the first part relative to the second part in an opposing direction.

**[0011]** Preferably, the pull tab is hinged to the aforesaid primary panel.

**[0012]** Preferably, the pull tab overlies a portion of the second part such that it is accessible by the user when the first and second parts are engaged with one another.

**[0013]** Preferably, a carton for containing articles comprising the locking arrangement, which carton has opposing first and second side walls connected by opposing first and second end walls and bottom closure structure formed from a plurality of bottom panels, and further having a cover panel that is hingeable with the second side wall so as to close the carton.

**[0014]** Preferably, the first part of the locking arrangement is connected to a panel of the carton along a first end thereof, and wherein the aforesaid free end is opposite that first edge.

**[0015]** Preferably, the pull tab is grippable such that force may be applied to the first part to disengage the first and second parts whilst minimising tearing of those parts, thereby to permit subsequent reengagement thereof.

**[0016]** Preferably, the carton comprises a handle structure that is extendable and comprises a handle panel, hinged at one end to the cover panel and secured to a flexible strap, which strap is secured at an opposing

end thereof to a portion of the cover panel, whereby the handle structure is extendable by pulling the flexible strap material through an aperture in the cover panel.

**[0017]** Preferably, the cover panel further comprises a reinforcing panel, hinged to a side edge of the cover panel, to which reinforcing panel the strap is secured, the reinforcing panel being folded into and secured in coplanar contact with a portion of the surface of the cover panel such that a folded portion of the strap material is releasably held in folded condition therebetween, which folded portion is releasable by pulling the handle panel away from the cover panel.

**[0018]** Preferably: a) the cover panel is formed from a first blank, and the remainder of the carton is formed from a second blank; or b) the carton is formed from a single piece blank.

**[0019]** A second aspect of the invention provides a blank for forming a carton for containing articles, which blank has panels for forming opposing first and second side walls connected by opposing first and second end walls and panels for forming a bottom closure structure formed from a plurality of bottom panels, and further having a cover panel that is hingeable with the panel for forming the second side wall so as to close the set up carton, and a two part locking means, comprising a first part and a second part, the first part having a primary panel comprising two or more protrusions, the second part having formed therein an aperture having first and second spaced opposing edges, the two or more protrusions being engageable with the first and second edges of the aperture when the carton has been set up, and characterised by the first part further comprising a pull tab that extends from a free edge of the primary panel and that is grippable by a user such that a force may be applied to the first part, when the carton is set up, to sufficiently deform either or both the first or second edge of the aperture, or either of a first or second protrusion of said two or more protrusions of the first part, to permit the first part to move relative to the second part, and thereby be disengageable therefrom, the first part being comprised in the cover panel, the second part of which two part locking means being formed in said first side wall.

### Brief Description of the Drawings

**[0020]** Exemplary embodiments of the present invention are now described, by way of example only, with reference to the accompanying drawings in which:

FIGURE 1 illustrates a plan view of a blank for forming a carton according to a first embodiment of the present invention;

FIGURE 2 illustrates a plan view of a blank for forming a carton according to a second embodiment of the present invention;

FIGURE 3A illustrates a carton according to a first

embodiment of the present invention;

FIGURE 3B illustrates an enlarge view of a locking means of the carton of FIGURE 3A;

FIGURE 4 illustrates a plan view of a blank for forming a first part of a carton according to a third embodiment of the present invention;

FIGURE 5 illustrates a plan view of a blank for forming a second part of a carton according to a third embodiment of the present invention;

FIGURE 6A illustrates a first step in the folding process necessary to form the blank of FIGURE 4 into a first part of a carton according to the third embodiment of the invention;

FIGURE 6B illustrates a second step in the folding process necessary to form the blank of FIGURE 4 into a first part of a carton according to the third embodiment of the invention;

FIGURE 7 illustrates a fully set up carton according to the third embodiment of the present invention; and

FIGURE 8 illustrates the carton of FIGURE 7 opened so as to reveal the contents thereof.

### Detailed Description of the Exemplary Embodiments

**[0021]** The present invention relates to a carton for containing articles which carton has walls and a covering portion formed from one or more blanks.

**[0022]** A first embodiment of the present invention is depicted in Figure 1 which provides a blank 2 comprising a first end panel 22, first side panel 20, second end panel 24 and second side panel 26 each hinged one to the next in linear series about fold lines 74, 72, 76 respectively. A glue panel 28 is hinged to the terminal end of the second side panel 26 about fold line 78. To one edge of the linear series of panels 22, 20, 24, 26 are hinged bottom closure panels 38, 32, 36, 34 about fold lines 84, 82, 81, 80 respectively.

**[0023]** Bottom panels 32 and 34 each have a terminal free edge comprising a detent, which detents are arranged such that the two bottom panels 34 and 32 may interlock with one another as the set up carton is formed (the process of erecting the blank is set out in greater detail below).

**[0024]** Further, bottom panels 32 and 34 have corner portions 87 and 89 hinged thereto about diagonal fold lines 88 and 88 respectively. These corner portions 87 and 89 are so hinged as to allow the bottom of the set up carton to be formed through an interlocking arrangement of the bottom panels 32 and 34 and the bottom end panels 36 and 38. Further discussion of the setting up of the carton from the blank is given below.

**[0025]** Defined within second side panel 26 are apertures 62, which apertures are defined between a plurality of cut lines 64, 66, 68, 70. These cut lines extend such that cut line 64 forms one uppermost terminal edge of the aperture 62, with cut lines 66 defining tabs T1 hinged to the second side panel 26 depending therebelow. The edges of the tabs T1 defined by cut lines 66 continue downwards to another pair of tabs T2. A final tab T3 is created by cut line 70 which tab extends between the edge of tabs T2 created by cut lines 68, thereby to form a completed aperture 62. In the exemplary embodiment illustrated in Figure 1 there are two apertures 62, formed side by side and spaced either side of the mid point of second side panel 26. Hinged to first side panel 20 along fold line 90 opposite fold line 82 is cover panel 30. Defined within cover panel 30 are a plurality of spaced parallel fold lines 40 which are provided so as to aid flexing of the cover panel 30 during set up of the carton (discussed in further detail below).

**[0026]** Also defined in cover panel 30 is handle panel 51 which handle panel 51 is defined between fold line 50, cut lines 42 and cut line 48. Fold line 50 is orientated transversely to the width of the cover panel 30 and is parallel to and offset from cut line 48 about a mid-point of the width of cover panel 30. Extending between the terminal points of fold line 50 and cut line 48 are cut lines 42. Centred along cut lines 45, further cut line 44 extends either side of the handle panel 51 to define arcuate indentations into the cover panel 30. Thus, between cut lines 44 and 42, either side of the handle panel 51, there are defined apertures 46 that are substantially, though optionally, semi-circular in geometry.

**[0027]** Hinged to the side of cover panel 30 about fold line 41 is reinforcing panel 56. Reinforcing panel 56 is substantially rectangular in shape and comprises flanged portions about its side edges adjacent the cover panel 30, so as to define an inwardly tapering portion which meets the hinge line 41. Defined within the reinforcing panel 56, proximate the fold line 41, is rectangular aperture 54 having substantially the same width as that of the handle panel 51.

**[0028]** As indicated in Figure 1 a strap of flexible material 52 is positioned over a portion of the cover panel 30, handle panel 51, reinforcing panel 56 and substantially all of aperture 54. The flexible strap 52 may be formed of any suitable flexible material such as a plastic material, paperboard or synthetic fibre. The strap 52 has substantially the same width as handle panel 51 and aperture 56. The strap 52 is secured to the blank 2 at locations depicted on Figure 1 by G1 and G2, and to substantially the entirety of handle panel (51). It is contemplated that securing methods such as adhesives, mechanical fasteners and other means known in the art may be employed.

**[0029]** Defined within the terminal edge of cover panel 30, distal from fold line 90, are locking means L that, in the set up carton, engage with the apertures 62 defined in the side panel 26 so as to lock the cover panel 30 in

a closed configuration. This is discussed in further detail below. The locking means L comprise primary panels 58 and pull tabs 60. The pull tab 60 is contained entirely within the locking means L and is not formed from the primary panel 58 or any portion of the cover panel 30. The pull tab 60 is connected to the free end of the primary panel 58 along fold line 94. Since the pull tab 60 is connected to the primary panel 58 and not formed structurally from the cover panel 30 or primary panel 58, it allows for a more structurally strengthened releasing mechanism and reduces tearing. Each primary panel 58 is hinged, along two outwardly angled fold lines 92, to portions of the cover panel 30. Pull tab 60 is hinged to the primary panel 58 about fold line 94.

**[0030]** Each primary main panel 58 of each locking means L is shaped such that its edge continues from a terminal edge of the cover panel 30 and extends outwardly to form a protrusion therefrom (as best shown in Figures 3A and 3B). The protrusion comprises shoulder portions S that extend transversely of the length of the protrusion. Disposed at the end of each primary panel 58 is pull tab 60 which has substantially parallel side edges and a substantially semi-circular terminal end. Between terminal points on fold lines 92 extends curved cut line 47 which defines heel portion H of the locking means L. The size and arrangement of heel portion H and shoulder portions S are such that the heel portion H may be passed through corresponding aperture 62 so as to overlie interior portions of second side panel 26 proximate cut line 64. The shoulder portions S are sized and arranged such that each shoulder portion S may be disposed interior of the carton, in contact with tabs T2. More detail of engagement of locking means L with aperture 62 is given below.

**[0031]** Figure 2 illustrates a second embodiment of the blank and like references have been used to denote like elements. Only the differences between the two embodiments will be described below.

**[0032]** Blank 102 comprises only a single aperture 162, complimentary to a single locking means L formed from primary panel 158 and pull tab 160 extending from cover portion 130.

**[0033]** The blanks 2, 102 of Figures 1 and 2 can be assembled into the erected carton of Figure 3A. The process for each blank is substantially the same, and is as follows, with reference to the numerals of the embodiment of Figure 1. Panels 28, 26, 24, 20 and 22 are hinged about fold lines 78, 76, 72 and 74 respectively so as to bring glue panel 28 into contact with first end panel 22, to which it is fastened by some means known in the art. Thus a tubular structure is formed between panels 28, 26, 24, 20 and 22. The bottom panels 34, 36, 32, 38 are then folded inwardly to close the bottom of that tubular structure. In one possible folding sequence, bottom panels 38 and 32 are first folded into a coplanar arrangement at which point corner portion 89 of bottom panel 32 is secured in face contacting relation with bottom panel 38. Thereafter, bottom panels 36 and 34 are folded into co-

planar arrangement and corner portion 87 of bottom panel 34 secured to bottom panel 36. One or both of bottom panels 32 or 34 are then urged interior of the carton until the complementary detents on bottom panels 32 and 34 interlock to close the bottom of the carton.

**[0034]** Reinforcing panel 56 is hinged about fold line 41 so as to come into surface contacting relation with cover panel 30, to which it is secured by adhesive or other fastening means at locations G3. Strap 52 is not secured to blank 2 at points 03. The folding of reinforcing panel 56 causes strap 52 to become folded where it overlies fold line 41. The aperture 54 allows the added width of the fold in the strap 52 to be accommodated.

**[0035]** Cover panel 30 is folded, primarily about fold line 90, but also about fold lines 40 as required, so as to insert shoulder portions S of locking means L under tabs T2, whilst at the same time, heel portion H is inserted into aperture 62 by bending the heel portion H about the terminal points of fold lines 92. Thus pull tab 60 comes to rest in surface contacting relation with an exterior surface of tab T3 whilst shoulder portions S and heel portion H are disposed in surface contacting relationship with an interior surface of tabs T2 and second side panel 26 respectively.

**[0036]** The locking means L is thus robustly engaged with apertures 62, restricted from disengagement by abutment between cut line 64 and terminal ends of curved cut lines 47 and further between shoulder portions S and tabs T2.

**[0037]** Nonetheless, locking means L can be disengaged from aperture 62, and this is facilitated by the provision of pull tab 60. By pulling on pull tab 60, the user is able to easily apply sufficient leverage to the locking means L to warp tabs T2 out of coplanar alignment with second side panel 26 and thereby disengage with shoulders S of the locking means L. The locking means L may thereafter be fully disengaged by pulling the pull tab 60, so as to withdraw the heel portion H, fully from aperture 62.

**[0038]** Once the cover panel 30/230 has been established in a closed condition by engagement of locking means L with corresponding ones of apertures 62, the carton is ready to be carried. This is effected by extending the handle panel 51 by hinging it about fold line 50 such that excess strap 52 material held between reinforcing panel 56 and cover panel 30 may be pulled through until the weight of the carton is supported by the fastening between the strap 52 and the reinforcing panel 56 at 01. Thus an aperture between an underside of the handle panel 51 and a top surface of cover panel 30 is created through which the user's fingers may pass.

**[0039]** Initial gripping of the handle panel 51 is facilitated by apertures 46 that allow gripping of the side edges of the handle panel 51. The extended handle panel 51 may be retracted by pushing the loose strap 52 material interior of the carton and, optionally, back through a channel formed between reinforcing panel 56 and cover panel 30 and bound on either side by fastening means at loca-

tions 03. A third embodiment of the present invention can be seen in Figure 4 which provides a blank 202 forming a first part of a two part assembly for creating the set up carton illustrated in Figure 7. The features of blank 202 are substantially similar to those of blank 2, and only the differences will be described below. Like numbering will be used to refer to like features, prefixed with the number '2'. Blank 202 comprises a back panel 211, hinged at either end to first and second spacer panels 208 and 213 respectively, about fold lines 209 and 212. Partition panel 206 is then hinged to the free end of first spacer panel 208 about fold line 207, and then, about fold line 205 to a glue panel 215.

**[0040]** Defined within cover panel 230 are handle flaps 216, 218 which are hinged to the cover panel 230 along adjacent portions of fold lines 240. The end edges of each of the handle flaps 216, 218 are defined by apertures 210 formed, by cut lines 214a and 214b, transversely of the width of cover panel 230. The handle flaps 216, 218 are separated from one another by cut line 212. Handle strap 296 is hinged to the side of cover panel 230 by fold line 295 and is longer than the width of the cover panel 230. Hinged along one side of the handle strap 296 is reinforcing strip 298. Transverse to the length of both handle strap 296 and reinforcing strip 298 are a plurality of fold lines 297.

**[0041]** The second part 203 of the two part assembly is illustrated best in Figure 5 which shows blank 203 comprising a first side panel 220 hinged on either side to first and second end panels 224, 222 about dual spaced fold lines 272, 274, and about one longitudinal edge to bottom panel 232 about dual spaced fold line 282. Second end panel 224 is then, in turn, hinged to second side panel 226 about dual spaced fold lines 276 and defined there-within are two apertures 262.

**[0042]** Carton 201, shown in Figure 7, may be erected from the two part blank of Figure 4 and Figure 5 using the following exemplary process.

**[0043]** Second spacer panel 213 of blank 202 is folded about fold line 212. The partition panel is then folded about fold line 207, and spacer panel 208 folded about fold line 209 so as to bring glue panel 205 into coplanar contact in which the two are secured through some means known in the art.

**[0044]** The blank 203 of Figure 5 is erected into a tubular form by folding panels 228, 226, 224, 220 and 222 as was described in the embodiment of Figure 1. The fold lines, in this embodiment, may each take the form of dual spaced fold lines, but perform the same function nonetheless. The bottom panels 232, 234, 236, 238 are also manipulated so as to close the bottom of the structure in the same manner as described in relation to the embodiment of Figure 1.

**[0045]** Figures 6A and 6B together show the formation of the handle arrangement from the handle strap 296 and the reinforcing strip 298. The reinforcing strip 298 is folded about fold line 299 in direction A so that it is superimposed onto handle strap 296 to which it is then secured

by some fastening or adhesive means. Handle strap 296 is then folded about fold line 295 so as to bring the reinforcing strip 298 into superposition over cover panel 230. Handle flaps 216, 218 are optionally folded back, about fold lines 40 so that the handle strap 296 then directly overlies the resulting aperture found therebetween. Figure 6B illustrates how the width of handle strap 296 and reinforcing strip 298 is substantially identical to the distance between fold lines 240 hinging handle flaps 216, 218. The handle strap 296 and reinforcing strip 298 are bent about fold lines 297 so as to form an arcuate handle structure that protrudes through the apertures 210 and externally of the set up carton as the handle flaps 216 and 218 are folded back into the plane of the cover panel 230. Thus the embodiment of Figures 4 to 8 provides a two part carton 290 that has a fixed handle structure rather than the extendable hinged handle panel 51 of Figure 3A.

[0046] Semi-erected blank 202 is then disposed within the erected lower portion of carton 201 such that back panel 211 can be secured in surface contacting relation with side panel 226. The two part construction thus arrives at a stage substantially identical to that of the embodiment of Figure 1, with the cover portion ready to be closed through engagement of locking means L with apertures 262.

[0047] The remainder of the process for setting up carton 201 from the two part blanks 202 and 203 is identical to that described above in relation to the first embodiment of the carton 1.

[0048] Any of the above embodiments of carton 1; 201 are capable of being loaded with articles, such as posts, bottles or drink pouches P, amongst others. Figures 7 and 8 show the loaded carton 201 in respective closed and open configurations.

[0049] As best seen in Figure 8, the articles (in this case, drinks pouches P) are arranged inside the carton 201. Depending on the geometry of the articles, and as is the case in the illustrated example, it may be preferred to forego the step of securing the glue panel 205 to the spacer panel 213, as this means that the partition panel 206 extends rigidly across the middle of the bottom of the carton 201. It may be preferable to omit the spacer panels and partition panel 206, 208 and 213 all together if they are not required, or else leave them unsecured such that they do not obstruct the articles P, and can be formed into the desired formation once the user has removed the articles A. This can be of interest where the carton is to be reused in such a way that a partition would become a useful feature, but where the partition is not necessary initially to retain the articles P (e.g. in use as a pencil case).

[0050] The above description sets out a series of exemplary embodiments of the present invention. Clearly, variations in the number of locking arrangements L are considered along with optional one piece, or multi-blank assemblies. One skilled in the art would readily appreciate that many such variations are possible, without de-

parting from the scope of the invention as defined by the attached claims.

[0051] Positional and directional adjectives used to denote or refer to elements in the above description, such as 'upper', 'lower', 'back', 'front', 'inner', 'outer' etc are non-limiting and are included only in the interests of aiding clarity of the description.

[0052] In the above description, the term "fold line" will be readily understood by one skilled in the art to encompass not only score lines, but also any common variation used in the field, such as intermittent cut lines and weakened lines etc. Nor does the term specifically denote single lines; each fold line could involve multiple fold lines parallel with one another as is illustrated in the above embodiments.

### Claims

1. A locking arrangement for maintaining a carton in a closed configuration, which locking arrangement comprises a first part and a second part, the first part having a primary panel (58; 258) comprising two or more protrusions (5, H), the second part having formed therein an aperture (62; 262) having first and second spaced opposing edges, the two or more protrusions (S) being engageable with the first and second edges (66) of the aperture (62), and **characterised by** the first part further comprising a pull tab (60; 260) that extends from a free end of the primary panel (58; 258) and that is grippable by a user such that a force may be applied to the first part to sufficiently deform either or both the first or second edge of the aperture and/or either of a first or second protrusion of said two or more protrusions (5, H) of the first part, to permit the first part to move relative to the second part, and thereby be disengageable therefrom.
2. The locking arrangement of claim 1 wherein the free end of the primary panel is furthest from an edge by which the primary panel is connectable to a carton.
3. The locking arrangement of claim 1 or claim 2 wherein the pull tab (60; 260) facilitates a reduction in tearing of the first and/or second parts, during disengagement thereof, when compared to the disengagement of a locking arrangement not comprising such a pull tab (60; 260).
4. The locking arrangement of claims 1 to 3, wherein a first of said two or more protrusions (5) is engageable with the first edge of the aperture (62; 262) to restrict movement, in a first direction, of the first part relative to the second part, and wherein a second of said two or more protrusions (S) is engageable with the second edge of the aperture (62; 262) to restrict movement of the first part relative to the second part in an

opposing direction.

5. The locking arrangement according to claims 1 to 4, wherein the pull tab is hinged to the aforesaid primary panel.
6. The locking arrangement according to claims 1 to 5, wherein the pull tab (60;260) overlies a portion of the second part such that it is accessible by the user when the first and second parts are engaged with one another.
7. A carton for containing articles comprising the locking arrangement according to claims 1 to 6, which carton has opposing first and second side walls (26,20; 226/206; 220/211) connected by opposing first and second end walls (24,22; 224/208, 222/213) and bottom closure structure (32, 34, 36, 38; 234,236,232, 238) formed from a plurality of bottom panels, and further having a cover panel (30;230) that is hingeable with the second side wall (20; 220/211) so as to close the carton.
8. The carton of claim 7, wherein the first part of the locking arrangement is connected to a panel of the carton along a first end thereof, and wherein the aforesaid free end is opposite that first edge.
9. The carton of claim 7 or claim 8, wherein the pull tab (60) is grippable such that force may be applied to the first part to disengage the first and second parts whilst minimising tearing of those parts, thereby to permit subsequent reengagement thereof.
10. The carton of claims 7 to 9, comprising a handle structure that is extendable and comprises a handle panel, hinged at one end to the cover panel (30; 230) and secured to a flexible strap (52), which strap (52) is secured at an opposing end thereof to a portion of the cover panel (30;230), whereby the handle structure is extendable by pulling the flexible strap material through an aperture in the cover panel (30; 230).
11. The carton of claim 10 wherein the cover panel (30) further comprises a reinforcing panel (56), hinged to a side edge of the cover panel (30;230), to which reinforcing panel the strap (52) is secured, the reinforcing panel being folded into and secured in coplanar contact with a portion of the surface of the cover panel (30;230) such that a folded portion of the strap material is releasably held in folded condition therebetween, which folded portion is releasable by pulling the handle panel away from the cover panel (30; 230).
12. The carton according to claims 7 to 11, wherein: a) the cover panel (30;230) is formed from a first blank,

and the remainder of the carton is formed from a second blank; or b) the carton is formed from a single piece blank.

- 5 13. A blank for forming a carton for containing articles, which blank has panels for forming opposing first and second side walls (26,20;226/206, 220/211) connected by opposing first and second end walls (24,22; 224/208, 222/213) and panels for forming a bottom closure structure (32,34,36,38; 234,236,232,238) formed from a plurality of bottom panels, and further having a cover panel (30;230) that is hingeable with the panel for forming the second side wall (20;220/211) so as to close the set up carton, and a two part locking means, comprising a first part and a second part, the first part having a primary panel (58,258) comprising two or more protrusions (S), the second part having formed therein an aperture (62;262) having first and second spaced opposing edges (66), the two or more protrusions (S, H) being engageable with the first and second edges of the aperture (62;262) when the carton has been set up, and **characterised by** the first part further comprising a pull tab that extends from a free edge of the primary panel (58,258) and that is grippable by a user such that a force may be applied to the first part, when the carton is set up, to sufficiently deform either or both the first or second edge of the aperture (62;262), or either of a first or second protrusion (S, H) of said two or more protrusions of the first part, to permit the first part to move relative to the second part, and thereby be disengageable therefrom, the first part being comprised in the cover panel (30;230), the second part of which two part locking means being formed in said first side wall.
14. The blank of claim 13 for forming a carton for containing articles, wherein said blank comprises elements forming the features of the carton according to claims 8 to 12.

#### Patentansprüche

1. Verriegelungsanordnung zum Halten einer Schachtel in einer geschlossenen Konfiguration, wobei die Verriegelungsanordnung ein erstes Teil und ein zweites Teil umfasst, wobei das erste Teil eine Hauptwandfläche (58; 258) aufweist, die zwei oder mehr Vorsprünge (S, H) umfasst, und das zweite Teil eine in ihm ausgebildete Öffnung (62; 262) aufweist, die erste und zweite beabstandete entgegengesetzte Kanten aufweist, wobei die zwei oder mehr Vorsprünge (S) mit der ersten und zweiten Kante (66) der Öffnung (62) in Eingriff bringbar sind, **dadurch gekennzeichnet, dass** das erste Teil weiterhin eine Zuglasche (60; 260) umfasst, die sich von einem freien Ende der Hauptwandfläche (58; 258)

- erstreckt und durch einen Anwender greifbar ist, derart, dass eine Kraft auf das erste Teil aufgebracht werden kann, um entweder eine oder beide der ersten oder zweiten Kanten der Öffnung und/oder entweder einen ersten oder zweiten Vorsprung der zwei oder mehr Vorsprünge (S, H) des ersten Teils ausreichend zu deformieren, um es dem ersten Teil zu erlauben, sich relativ zu dem zweiten Teil zu bewegen und hierdurch von diesem außer Eingriff genommen zu werden.
2. Verriegelungsanordnung gemäß Anspruch 1, wobei das freie Ende der Hauptwandfläche am weitesten von einer Kante entfernt ist, durch die die Hauptwandfläche mit einer Schachtel verbunden werden kann.
3. Verriegelungsanordnung gemäß Anspruch 1 oder Anspruch 2, wobei die Zuglasche (60; 260) eine Reduzierung des Reißens des ersten und/oder zweiten Teiles bewirkt, während sie außer Eingriff genommen werden, und zwar im Vergleich zu der Außer-eingriffnahme einer Verriegelungsanordnung, die keine solche Zuglasche (60; 260) umfasst.
4. Verriegelungsanordnung gemäß Ansprüchen 1 bis 3, wobei ein erster der zwei oder mehr Vorsprünge (S) mit der ersten Kante der Öffnung (62; 262) in Eingriff nehmbar ist, um eine Bewegung in eine erste Richtung des ersten Teils relativ zu dem zweiten Teil zu beschränken, und wobei ein zweiter der zwei oder mehr Vorsprünge (S) mit der zweiten Kante der Öffnung (62; 262) in Eingriff nehmbar ist, um eine Bewegung des ersten Teils relativ zu dem zweiten Teil, in eine entgegengesetzte Richtung zu begrenzen.
5. Verriegelungsanordnung gemäß Ansprüchen 1 bis 4, wobei die Zuglasche an die zuvor genannte Hauptwandfläche angelenkt ist.
6. Verriegelungsanordnung gemäß Ansprüchen 1 bis 5, wobei die Zuglasche (60; 260) einen Abschnitt des zweiten Teils überdeckt, derart, dass sie für einen Anwender zugänglich ist, wenn das erste und das zweite Teil miteinander in Eingriff sind.
7. Schachtel zum Fassen von Gegenständen, die die Verriegelungsanordnung gemäß der Ansprüche 1 bis 6 umfasst, wobei die Schachtel entgegengesetzte erste und zweite Seitenwandflächen (26, 20; 226/206; 220/211) aufweist, die durch entgegengesetzte erste und zweite Endwandflächen (24, 22; 224/208, 222/213) verbunden sind, und eine Bodenverschlussstruktur (32,-34,-36, -38; 234,236,232,-238), die durch einer Vielzahl von Bodenwandflächen ausgebildet wird, und die weiterhin eine Abdeckwandfläche (30; 230) aufweist, die gelenkig mit der zweiten Seitenwandfläche (20; 220/211) verbunden ist, um die Schachtel zu verschließen.
8. Schachtel gemäß Anspruch 7, wobei das erste Teil der Verriegelungsanordnung mit einer Wandfläche der Schachtel entlang einem ersten Ende davon verbunden ist, und wobei das vorgenannte freie Ende entgegengesetzt zu der ersten Kante ist.
9. Schachtel gemäß Anspruch 7 oder Anspruch 8, wobei die Zuglasche (60) greifbar ist, derart, dass eine Kraft auf das erste Teil aufgebracht werden kann, um die ersten und zweiten Teile außer Eingriff zu bringen und zwar unter minimalen Reißen dieser Teile, und dadurch eine nachfolgende Wiedereingriffnahme zu erlauben.
10. Schachtel gemäß Ansprüchen 7 bis 9, die eine Griffstruktur umfasst, die ausziehbar ist und eine Griffwandfläche umfasst, die an einem Ende an die Abdeckwandfläche (30; 230) angelenkt ist und durch ein flexibles Gurt (52) gesichert ist, wobei der Gurt (52) an einem entgegengesetzten Ende an einem Abschnitt der Abdeckwandfläche (30; 230) gesichert ist, wodurch die Handgriffstruktur durch Ziehen des flexiblen Gurtmaterials durch eine Öffnung in der Abdeckwandfläche (30; 230) ausziehbar ist.
11. Schachtel gemäß Anspruch 10, wobei die Abdeckwandfläche (30) weiterhin eine Verstärkungswandfläche (56) umfasst, die an eine Seitenkante der Abdeckwandfläche (30; 230) angelenkt ist, an die der Gurt (52) gesichert ist, wobei die Verstärkungswandfläche in koplanaren Kontakt mit einem Abschnitt der Fläche der Abdeckwandfläche (30; 230) gefaltet und entsprechend gesichert ist, derart, dass ein gefalteter Abschnitt des Gurtmaterials in dem gefalteten Zustand dazwischen freigebbar gehalten wird, wobei der gefaltete Abschnitt durch Ziehen der Handgriffwandfläche weg von der Abdeckwandfläche (30; 230) freigebbar ist.
12. Schachtel gemäß Ansprüchen 7 bis 11, wobei: a) die Abdeckwandfläche (30; 230) aus einem ersten Zuschnitt ausgebildet ist, und der verbleibende Teil der Schachtel durch einen zweiten Zuschnitt ausgebildet ist; oder b) die Schachtel aus einem einstückigen Zuschnitt ausgebildet ist.
13. Zuschnitt zum Ausbilden einer Schachtel zum Fassen von Gegenständen, wobei der Zuschnitt Wandflächen zum Ausbilden entgegengesetzter erster und zweiter Wandflächen (26,20; 226/206, 220/211) aufweist, die durch entgegengesetzte erste und zweite Endwandflächen (24,22; 224/208, 222/213) verbunden sind und Wandflächen zum Ausbilden einer Bodenverschlussstruktur (32,34,36,38; -234,236,232,238), die durch eine Vielzahl von Bodenwandflächen ausgebildet werden, und weiterhin



eine Abdeckwandfläche (30; 230) aufweist, die gelenkig mit der Wandfläche zum Ausbilden der zweiten Seitenwandfläche (20; 220/211) verbunden ist, um die aufgerichtete Schachtel zu verschließen, und ein zweiteiliges Verriegelungsmittel, das ein erstes Teil und ein zweites Teil umfasst, wobei das erste Teil eine Hauptwandfläche (58; 258) aufweist, die zwei oder mehr Vorsprünge (S) umfasst, und das zweite Teil eine in ihm ausgebildete Öffnung (62; 262) aufweist, die erste und zweite beabstandete Kanten (66) aufweist, die zwei oder mehr Vorsprünge (S, H) mit der ersten und zweiten Kante der Öffnung (62; 262) in Eingriff bringbar sind, wenn die Schachtel aufgerichtet wurde, **dadurch gekennzeichnet, dass** das erste Teil weiterhin eine Zuglasche umfasst, die sich von einem freien Ende der Hauptwandfläche (58; 258) erstreckt und die durch einen Anwender greifbar ist, derart, dass eine Kraft auf das erste Teil aufgebracht werden kann, wenn die Schachtel aufgerichtet ist, um entweder eine oder beide der ersten und zweiten Kante der Öffnung (62; 262) oder entweder einen ersten oder zweiten Vorsprung (S, H) der zwei oder mehr Vorsprünge des ersten Teils ausreichend zu deformieren, um es dem ersten Teil zu erlauben, sich relativ zu dem zweiten Teil zu bewegen und dadurch von diesem außer Eingriff bringbar zu sein, wobei das erste Teil von der Abdeckwandfläche (30; 230) umfasst ist und wobei das zweite Teil der zweiteiligen Verriegelungsmittel in der ersten Seitenwand ausgebildet ist.

14. Zuschnitt zum Ausbilden einer Schachtel, zum Fassen von Gegenständen gemäß Anspruch 13, wobei der Zuschnitt Elemente umfasst, die die Merkmale der Schachtel gemäß der Ansprüche 8 bis 12 ausbilden.

#### Revendications

1. Agencement de blocage pour maintenir un carton dans une configuration fermée, lequel agencement de blocage comprend une première partie et une deuxième partie, la première partie comportant un panneau principal (58 ; 258) comprenant deux protubérances ou plus (S, H), la deuxième partie comportant une ouverture (62 ; 262) ayant des premier et deuxième bords espacés opposés, les deux protubérances ou plus (S) pouvant se mettre en prise avec les premier et deuxième bords (66) de l'ouverture (62), et **caractérisé en ce que** la première partie comprend en outre une tirette (60 ; 260) qui s'étend depuis une extrémité libre du panneau principal (58 ; 258) et qui peut être saisie par un utilisateur de telle manière qu'une force peut être appliquée à la première partie pour déformer suffisamment l'un ou l'autre ou les deux premier et deuxième bords de l'ouverture et/ou l'une ou l'autre d'une première et

deuxième protubérance desdites deux protubérances ou plus (S, H) de la première partie, pour permettre à la première partie de se déplacer par rapport à la deuxième partie, et donc de se dégager de celle-ci.

2. Agencement de blocage selon la revendication 1, dans lequel l'extrémité libre du panneau principal est la plus éloignée d'un bord par lequel le panneau principal peut être connecté à un carton.
3. Agencement de blocage selon la revendication 1 ou 2, dans lequel la tirette (60 ; 260) facilite une réduction du déchirement de la première et/ou deuxième partie, pendant le dégagement de celles-ci, comparé au dégagement d'un agencement de blocage ne comprenant pas une telle tirette (60 ; 260).
4. Agencement de blocage selon les revendications 1 à 3, dans lequel une première desdites deux protubérances ou plus (S) peut se mettre en prise avec le premier bord de l'ouverture (62, 262) pour limiter le mouvement, dans une première direction, de la première partie par rapport à la deuxième partie, et dans lequel une deuxième desdites deux protubérances ou plus (S) peut se mettre en prise avec le deuxième bord de l'ouverture (62, 262) pour limiter le mouvement de la première partie par rapport à la deuxième partie dans une direction opposée.
5. Agencement de blocage selon les revendications 1 à 4, dans lequel la tirette est articulée sur ledit panneau principal.
6. Agencement de blocage selon les revendications 1 à 5, dans lequel la tirette (60 ; 260) recouvre une portion de la deuxième partie, de sorte qu'elle est accessible à l'utilisateur quand les première et deuxième parties sont en prise entre elles.
7. Carton destiné à contenir des articles comprenant l'agencement de blocage selon les revendications 1 à 5, lequel carton comporte des première et deuxième parois latérales opposées (26, 20 ; 226/206 ; 220/211) connectées par des première et deuxième parois d'extrémité opposées (24, 22 ; 224/208 ; 222/213) et une structure de fermeture inférieure (32, 34, 36, 38 ; 234, 236, 232, 238) formée à partir d'une pluralité de panneaux inférieurs, et comportant en outre un panneau de fermeture (30 ; 230) qui peut être articulé sur la deuxième paroi latérale (20 ; 220/211) afin de fermer le carton.
8. Carton selon la revendication 7, dans lequel la première partie de l'agencement de blocage est connectée à un panneau du carton le long d'une première extrémité de celui-ci, et dans lequel ladite extrémité libre est opposée à ce premier bord.

9. Carton selon la revendication 7 ou 8, dans lequel la tirette (60) peut être saisie de telle manière qu'une force peut être appliquée à la première partie pour libérer les première et deuxième parties tout en minimisant le déchirement de ces parties, pour permettre de ce fait un réengagement ultérieur de celles-ci. 5
10. Carton selon les revendications 7 à 9, comprenant une structure de poignée qui est extensible et qui comprend un panneau de poignée, articulé en une extrémité au panneau de fermeture (30 ; 230) et fixé à une sangle flexible (52), laquelle sangle (52) est fixée à une extrémité opposée de celle-ci à une partie du panneau de fermeture (30 ; 230), moyennant quoi la structure de poignée est extensible en tirant le matériau de la sangle flexible à travers une ouverture prévue dans le panneau de fermeture (30 ; 230). 10
11. Carton selon la revendication 10, dans lequel le panneau de fermeture (30) comprend en outre un panneau de renforcement (56), articulé sur un bord latéral du panneau de fermeture (30 ; 230), la sangle (52) étant fixée sur ledit panneau de renforcement, le panneau de renforcement étant plié dans et fixé en contact coplanaire avec une partie de la surface du panneau de fermeture (30 ; 230) de telle manière qu'une partie pliée du matériau de la sangle est maintenue de façon détachable en état plié entre eux, laquelle partie pliée est détachable en tirant le panneau de poignée à l'écart du panneau de fermeture (30 ; 230). 15
12. Carton selon les revendications 7 à 11, dans lequel :  
 a) le panneau de fermeture (30 ; 230) est formé à partir d'une première découpe, et le reste du carton est formé à partir d'une deuxième découpe ; ou b) le carton est formé à partir d'une découpe d'une seule pièce. 20
13. Découpe pour former un carton destiné à contenir des articles, laquelle découpe comporte des panneaux destinés à former des première et deuxième parois latérales opposées (26, 20 ; 226/206 ; 220/211) connectées par des première et deuxième parois d'extrémité opposées (24, 22 ; 224/208 ; 222/213) et des panneaux destinés à former une structure de fermeture inférieure (32, 34, 36, 38 ; 234, 236, 232, 238) formée à partir d'une pluralité de panneaux inférieurs, et comportant en outre un panneau de fermeture (30 ; 230) qui peut être articulé sur le panneau destiné à former la deuxième paroi latérale (20 ; 220/211) afin de fermer le carton formé, et un moyen de blocage en deux parties, comprenant une première partie et une deuxième partie, la première partie comportant un panneau principal (58, 258) comprenant deux protubérances ou plus (S), la deuxième partie comportant une ouverture (62 ; 262) ayant des premier et deuxième bords espacés opposés (66), les deux protubérances ou plus (S, H) pouvant se mettre en prise avec les premier et deuxième bords de l'ouverture (62 ; 262) quand le carton est formé, et **caractérisé en ce que** la première partie comprend en outre une tirette qui s'étend depuis un bord libre du panneau principal (58 ; 258) et qui peut être saisie par un utilisateur de telle manière qu'une force peut être appliquée à la première partie, quand le carton est formé, pour déformer suffisamment l'un ou l'autre ou les deux premier et deuxième bords de l'ouverture (62 ; 262), ou l'une ou l'autre d'une première et deuxième protubérance (S, H) desdites deux protubérances ou plus de la première partie, pour permettre à la première partie de se déplacer par rapport à la deuxième partie, et donc de se dégager de celle-ci, la première partie étant comprise dans le panneau de fermeture (30 ; 230), la deuxième partie du moyen de blocage en deux parties étant formée dans ladite première paroi latérale. 25
14. Découpe selon la revendication 13 pour former un carton destiné à contenir des articles, dans laquelle ladite découpe comprend des éléments formant les caractéristiques du carton selon les revendications 8 à 12. 30

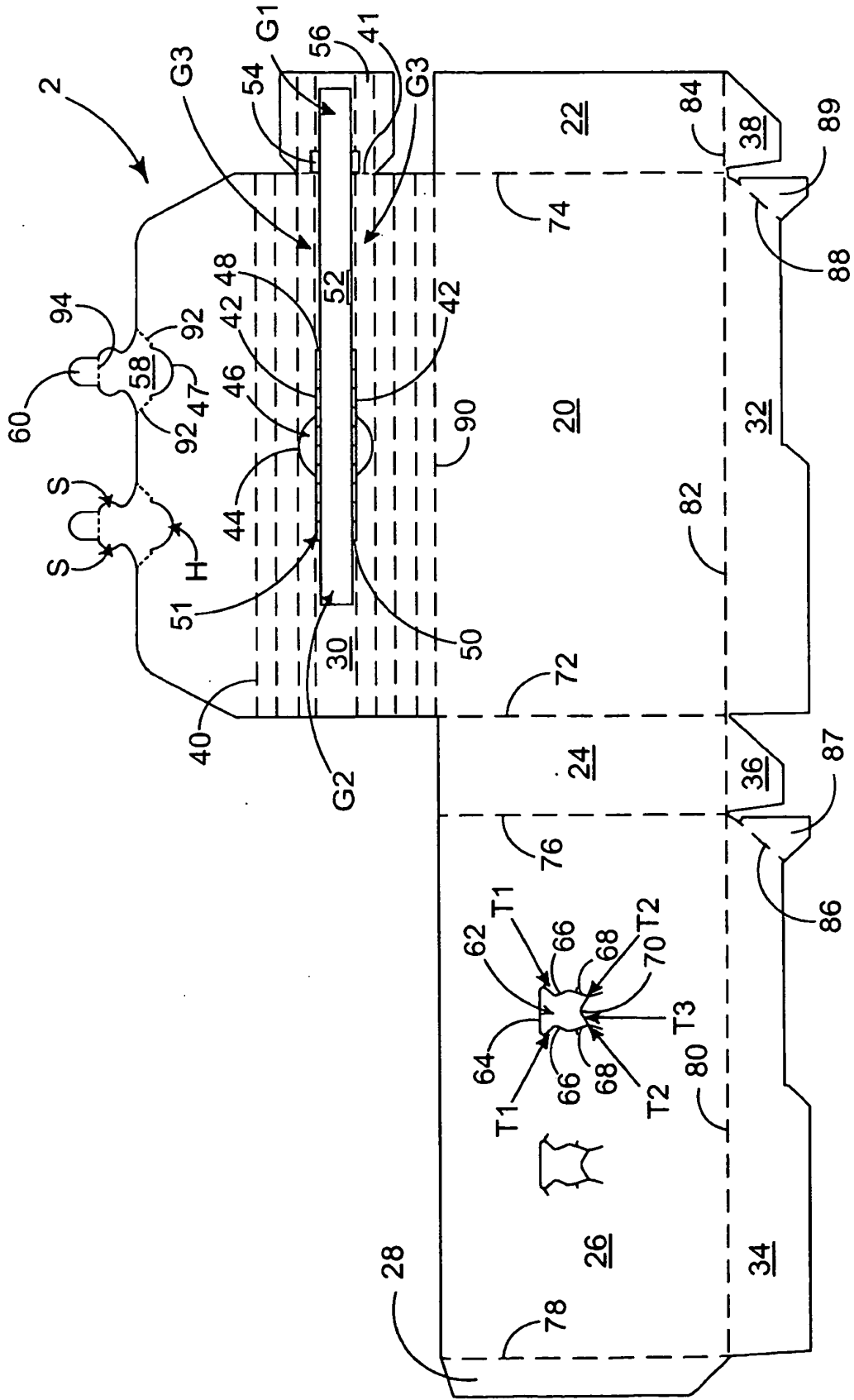


FIGURE 1



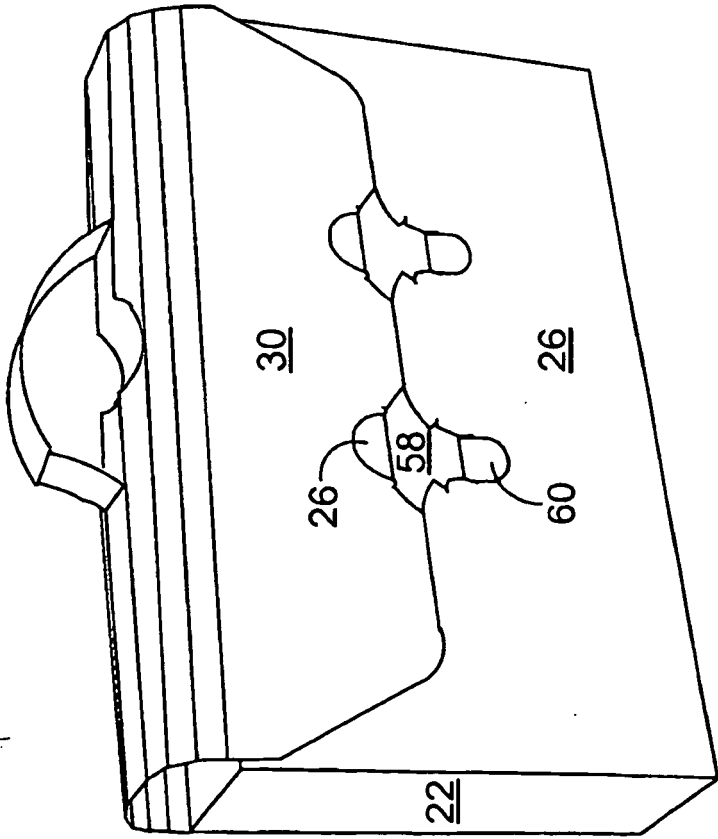


FIGURE 3A

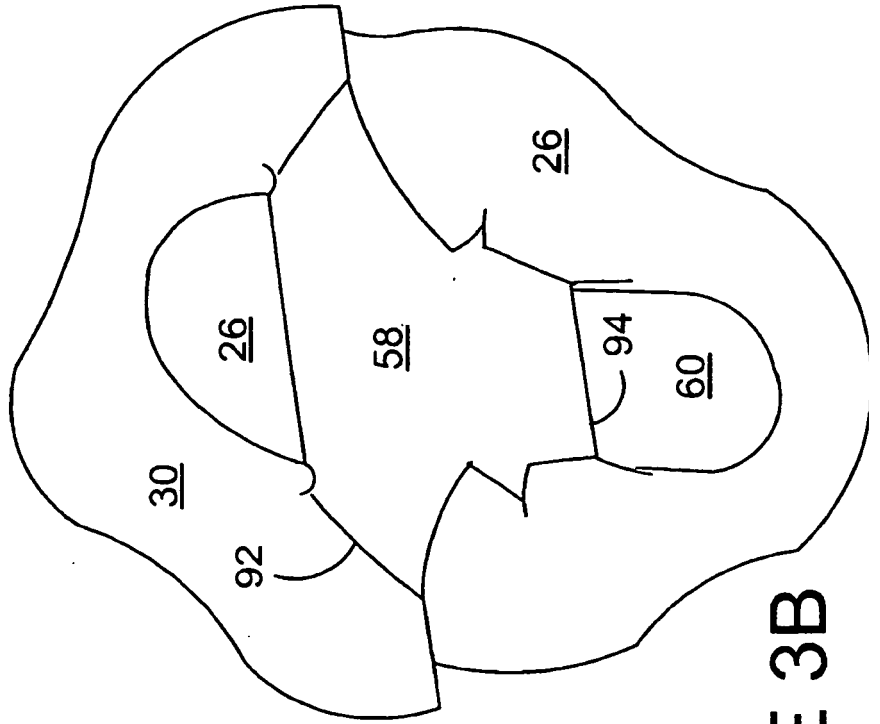


FIGURE 3B

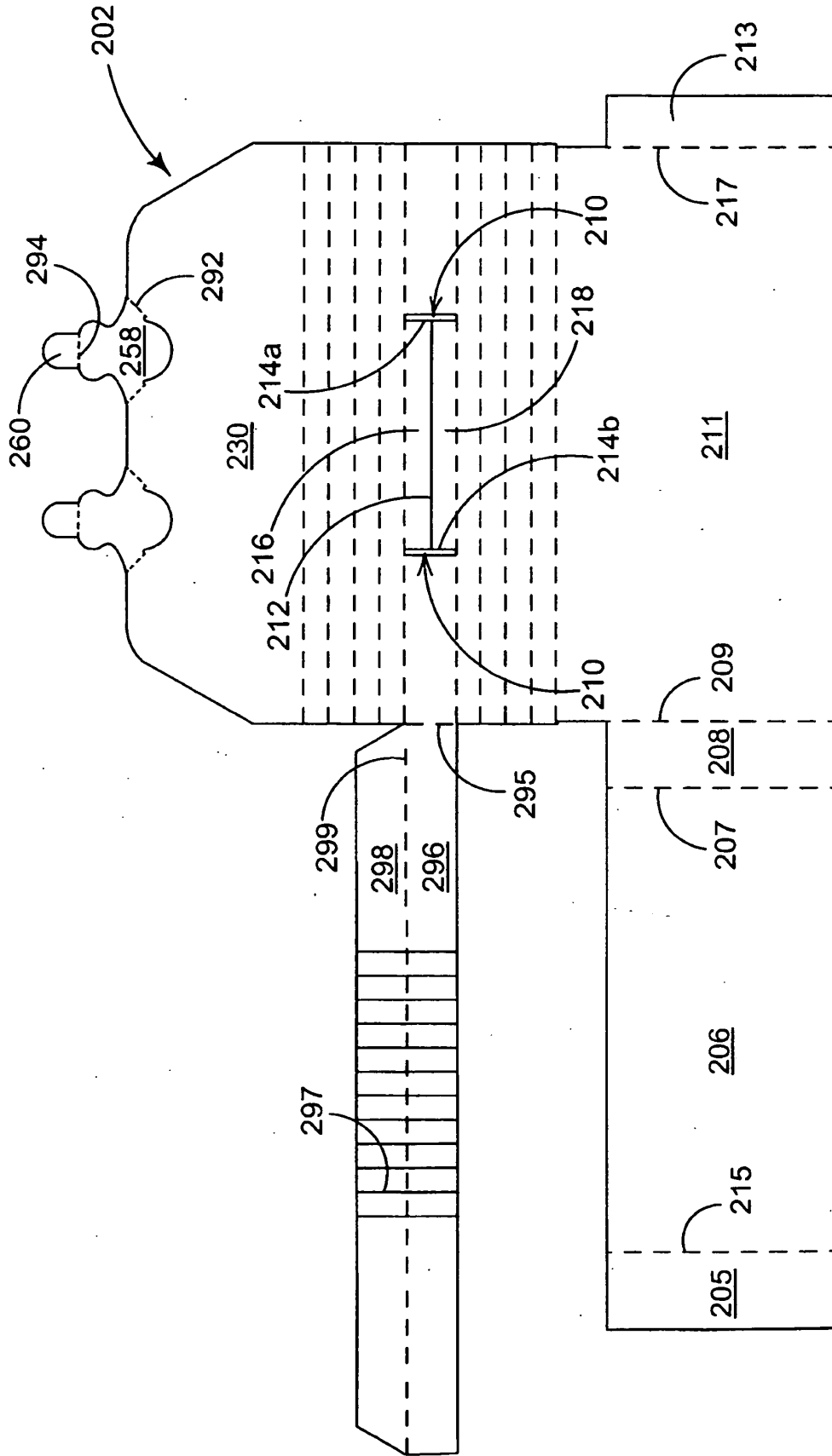


FIGURE 4

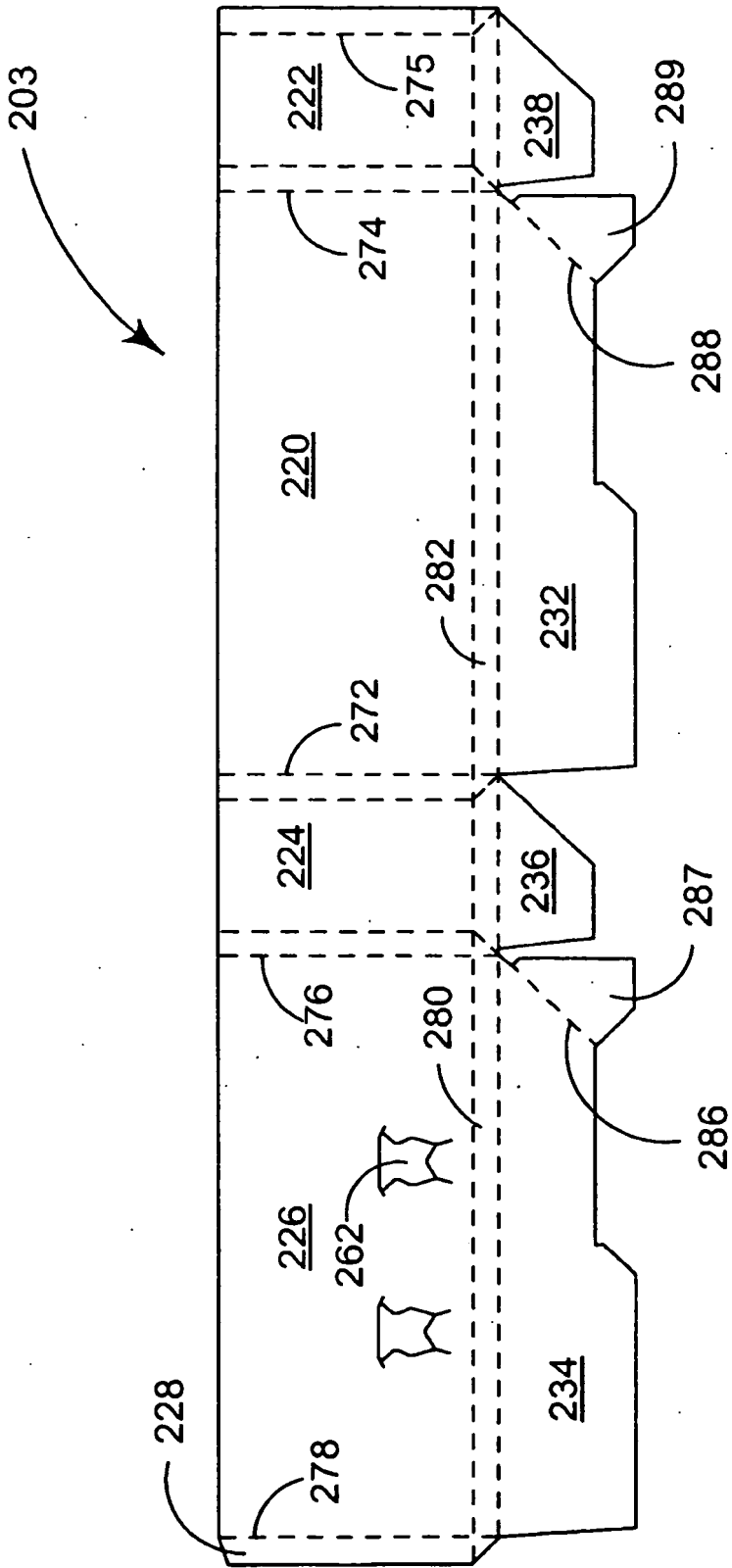
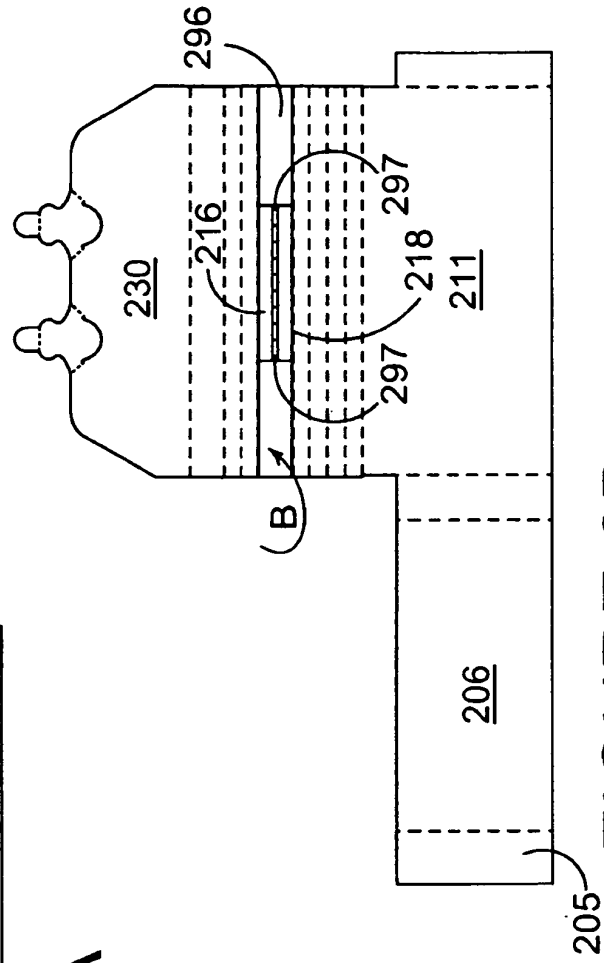
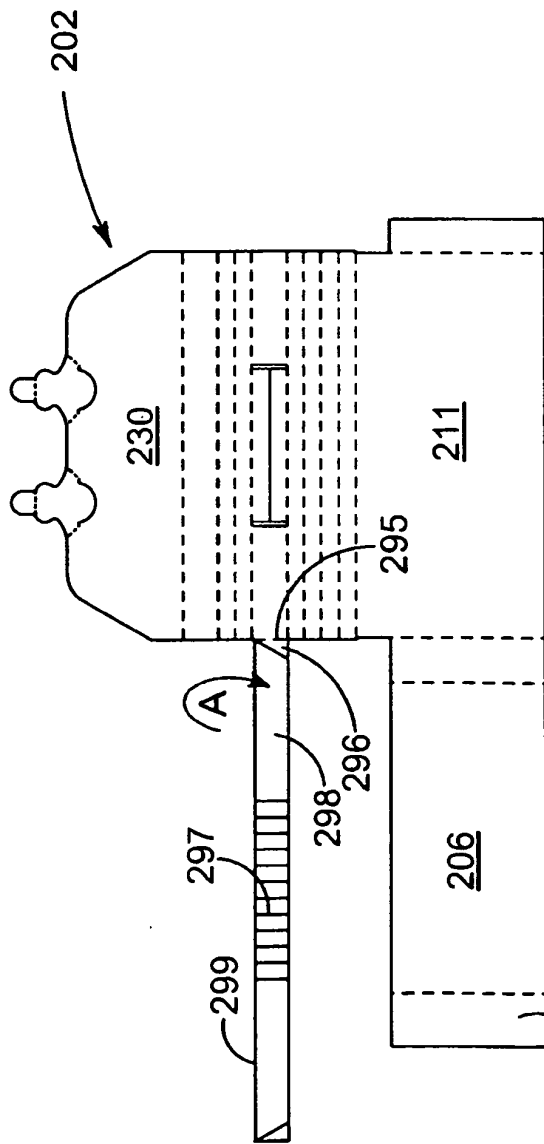


FIGURE 5





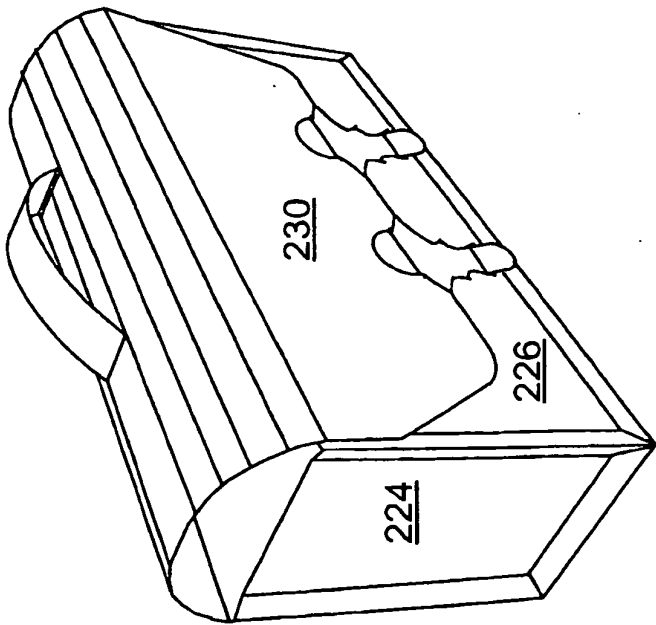


FIGURE 7

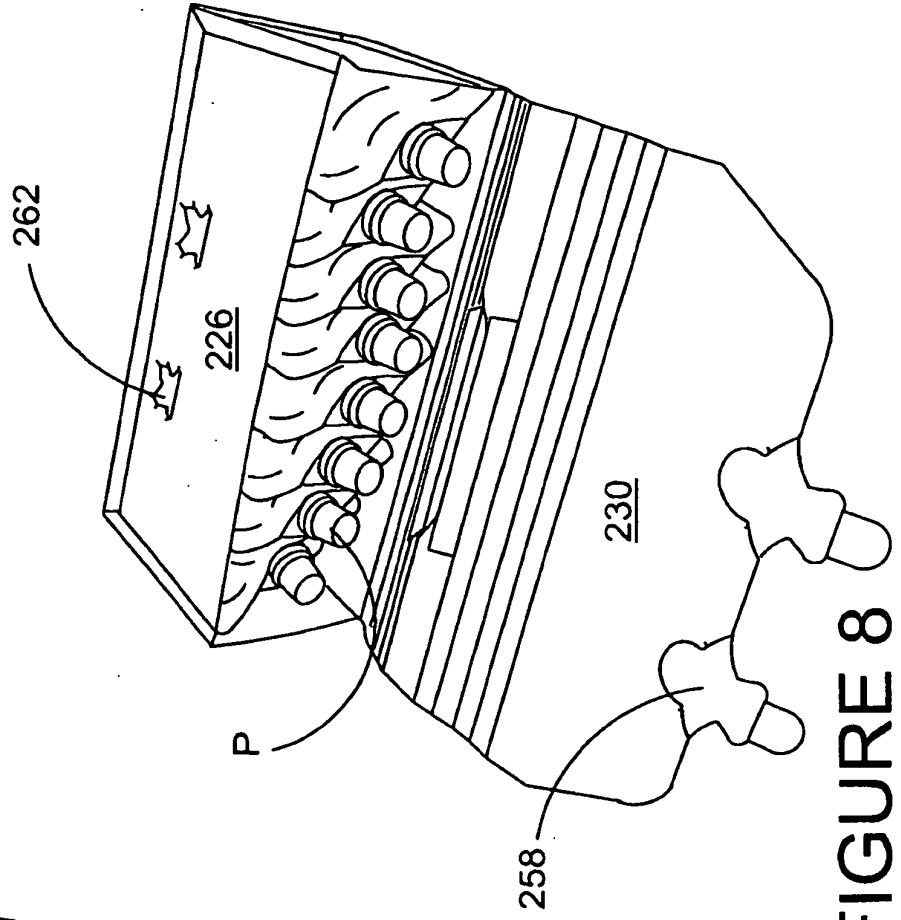


FIGURE 8

**REFERENCES CITED IN THE DESCRIPTION**

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