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(54) **Carton for holding a plurality of articles**

Verpackung zum Halten einer Mehrzahl von Gegenständen

Carton pour transporter une pluralité d'articles

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Description

[0001] This invention relates to a carton which is particularly but not only suitable for accommodating beverage containers such as cans and which incorporates a "strap-type" carrying handle which is automatically set up into a position of use as the carton is being closed after having been loaded.

[0002] Beverage cartons which include carrying handles and indeed, strap type carrying handles are known. For example, US 4,166,570 (Lazerand et al) discloses a packaging carton for beverage cans which a strap type handle. The handle strap has a central user portion exposed to view in a handle access aperture in top wall of the carton, extends across the top wall and has opposite ends which terminate in respective ones of a pair of end closure flaps which are hinged to the top wall. The handle strap is reinforced by a separate strip of reinforcing material, for example, a fibrous tape.

[0003] The carton is set up as an open-ended sleeve for loading and is then end-loaded whereafter the carton is completed by closure of the end closure panel. The end closure panel closing has an effect on the disposition of the handle strap. As the top end closure panels are folded into their closing positions the handle strap becomes slack into a position ready for use. When the carton is lifted by the central user part of the handle strap, the strap bows upwardly and protrudes through the handle access aperture proud of the top wall. The load is transmitted from the handle strap to the top wall of the carton at each of the opposite ends of the handle access aperture and is distributed through the top wall.

[0004] A further problem has been identified regarding the packaging of shaped articles, for example pear shaped bottles, whereby known cartons do not support the articles sufficiently well to minimise movement of the articles within the carrier.

[0005] The present invention has sought to overcome or at mitigate the problems of the prior art.

[0006] One aspect of the invention provides a carton for beverage containers which carton includes a series of hinged panels forming a sleeve and end closure panels hinged to at least one associated hinge panel for closing, at least in part, the opposite ends of a sleeve, wherein the said carton includes handle means by which the carton can be carried, said handle means comprising a strap connected to opposed end panels having a user part which is in substantially co-planar relationship with said one hinged panel when in a stored condition, the strap being so connected at its opposite ends to said end closure panels as to provide a surplus of material to enable said user part to be brought into a position of use.

[0007] A second aspect of the invention provides a carton for holding a plurality of articles in a group, which carton comprising top, opposed side walls and a base, hingedly interconnected together to form a tubular structure wherein at least one of the side walls comprises a

displaceable zone arranged to protrude out of the plane of the side wall to accommodate a portion of an adjacent article. The displaceable zone comprises a multiplicity of connected sections each occupying a different plane to a next adjacent section. Preferably, the displaceable zone is shaped to conform to the shape of the article.

[0008] According to an optional feature of the second aspect of the invention the connected sections are provided by a series of pairs of arcuate cut lines.

[0009] According to a further optional feature of the second aspect of the invention the side wall further comprises a tab struck from a portion of the side wall in which the plurality of arcuate cut lines are formed to define the protruding portion and wherein the cut lines are arranged in a substantially vertical plane.

[0010] In some embodiments there further comprises at least one article retaining flap to be folded inwardly of a side panel to retain a lower portion of an article.

[0011] A third aspect of the invention provides a blank for forming a carton comprising a plurality of articles including a shaped body portion, for example a pear shaped bottle, which carton blank comprising a top, opposed side walls and a base hingedly interconnected together wherein the side wall comprises a plurality of cut lines arranged in a spaced relationship and adapted to receive the shaped body portion of said article when the carton is in the set up condition. Preferably the cut lines are arcuate.

[0012] According to an optional feature of the third aspect of the present invention the side wall further comprises a tab struck from a portion of the side wall in which the plurality of arcuate cut lines are formed to define the protruding portion and wherein the cut lines are arranged in a substantially parallel arrangement. There may further comprises at least one article retaining flap to be folded inwardly of a side panel to retain a lower portion of an article.

[0013] Exemplary embodiments of the invention will now be described by way of example, with reference to the following drawings in which:

FIGURE 1 is a plan view of a blank of a wrap round carton;

FIGURE 2 is a plan view of part of the carton illustrating the portion for receiving and retaining an article;

FIGURE 3a is a perspective view of the upper panels of the blank shown in Figure 1;

FIGURE 3b is a perspective view of the inner face of the upper panels of blank showing the end closure panels being formed; and

FIGURE 4 illustrates the lower portion of the carton formed substantially from a blank illustrated in Figure 1.

[0014] Referring to the drawings and in particular Figures 1 and 2 thereof, an article carrier is formed from a unitary blank 10 made from paper board or other suitable

ble foldable sheet material, which can be adapted to accommodate the variety of articles, for example six bottles arranged in two rows of three bottles each. It is envisaged the carrier can be adapted to accommodate a different number of bottles according to user requirements. Turning to the carton blank 10 illustrated in Figure 1, this blank includes a first base panel 12, sloping heel panel 14, lower side panel 16, upper side panel 18, shoulder panel 20, top panel 22, second shoulder panel 24, second upper panel 26, second lower side panel 28, sloping heel panel 30, second base panel 32 hingeably connected one to the next in a longitudinal plane along fold lines 34, 36, 38, 40, 42, 44, 46, 48, 50 and 52 respectively.

[0015] For tightening the wrapper around a group of articles, tightening apertures 58 are formed in base panel 12 while a similar tightening aperture 60 are formed in second base panel 34. With the wrapper disposed about a group of articles and with the base panels 12 and 34 disposed in an overlapping relationship, machine elements enter the tightening apertures 58, 60 and move towards the other, so as to tighten the wrapper about the group of articles as is well known. After the wrapper is tightened, it is locked by means of locking tabs 62 which are driven through the apertures and defined by retaining tabs 64 respectively. The configurations of locking tabs and retaining tabs 62, 64 are well known and the locking operation is well understood.

[0016] Article support and retaining means 66 comprises a series of article engaging reinforcing flaps 68,70,72;74,76,78 struck from the respective sloping heel panels 14;30 and base panels 12;32. The article support and retaining means further comprises a series of article support panels 80,82,84;86,88,90 struck from respective lower side panels 14,28. Article support panels 80-90 and article engaging reinforcing flaps 68-78 are identical and therefore a detailed description of article support panel 80 and article engaging reinforcing flap 68 only are here included and described in greater detail by reference to Figure 2.

[0017] Thus, in this embodiment, the article engaging reinforcing flaps 68 comprises a pair of oppositely disposed flaps 92,94 foldably joined to sloping heel panel 14 along fold lines 96 and 98 respectively. Preferably, fold lines 96 and 98 are convergent in an upward direction. Flaps 92, 94 are also connected to base panel 12 along fold lines 100 and 102 respectively, being convergent towards the free end edge of base panel 12. Preferably, fold lines 96;98 and 100; 102 intersect at interrupted fold line 34. A cut line 104 separates adjacent flaps 92,94 and optionally a further pair of fold lines 106, 108 extend between the intersection of fold line 34 with fold lines 100,96;102,98 respectively and cut line 104.

[0018] The lower edges of flaps 92,94 define an edge of tightening aperture 58 and the upper edge of flaps 92,94 extend into an article heel receiving aperture 110, struck from part of the sloping heel panel 14 and extending into lower side panel 16. In the embodiment illustrat-

ed in Figure 2, the article heel receiving aperture 110 is interrupted by article support panel 80 interconnecting opposed sides edges of the interrupted lower side panel 16.

[0019] The article support panel 80 comprises a series of cut lines 112, 114 being preferably arcuate. Thus, each set of cut lines 112 and 113 are spaced on either side of a notional centre line extending from points intermediate upper and lower edges 115,116 of the article support panel 80. In this embodiment, each set comprises four cut lines 112 and 114, although it is envisaged that there could be more cut lines to increase the protrusion or fewer cut lines to reduce it. Thus, articles of varying shapes and sizes can be packaged without departing from the scope of invention, by the addition or removal of cut lines 112, 114. In use, the cut lines 112, 114 define a displaceable zone, hereinafter described.

[0020] The top panel 22 can further comprise a central user portion 180, frangibly connected to the top panel 22. In this embodiment, the central user portion 180 is substantially rectangular in shape and comprises a pair of support panels 182, 184 struck from and connected to the side edges of central user portion along fold lines 186, 188 respectively. Additionally, a handle strap 190, shown in the Figure 3a can be applied to the inner surface of the blank 10, being secured to the central user portion 180 and the opposed main portions 126, 126a of end closure panels by glue or other means known in the art. Preferably, the handle strap 190 is also glued to the tread panels 174, 174a of each step as shown in Figure 3a. It is further preferred the handle strap is formed from paper board, laminated paper board, fibrous tape or other suitable plastics material.

[0021] Turning to the construction of the carton, illustrated in Figures 3b and 4 the blank requires a series of sequential folding and gluing operations which can be performed in a straight line machine so that the carton is not required to be rotated or inverted to complete its construction. The folding process is not limited to that described below and can be altered according to particular manufacturing requirements.

[0022] Thus, articles A are held together in two rows of three articles A and the carton blank is introduced to the articles A. In this embodiment the blank is introduced from above. The shoulder panels 20, 24 and side panels 16, 18, 26, 28 of the blank are then folded about fold lines 42 and 48 respectively such that side panels preferably taper downwardly and outwardly from top panel 24 and the end closure panels are constructed.

[0023] The end closure panels 118 and 120 are folded downwardly at each end of the sleeve formed by the wrap around folding action. At the same time, gusset panels 128, 130 and 148, 150 are folded inwardly about fold lines 132, 152 and 122 whereby gusset panels 128; 148 come into face to face relationship with shoulder panel 20 and 24 respectively. The panels are at the stage of construction shown in Figure 3b. Thereafter, the side panels 18, 26 continue to be folded such that the

second gusset panels 130,150 come into face to face contact with their respective first gusset panels 128, 148. During the aforementioned folding process the corner arrangements are also formed whereby panel portions 140, 160 are folded out of alignment with next adjacent panel portion 142, 162 to define a substantially curved corner portion, shown in Figure 3b.

[0024] Optionally, the faces of gusset flaps 128, 148 in contact with shoulder panels 20,24 respectively may be secured together by means known in the art to hold the end closure panels in place. Additionally, or alternatively, first and second gusset panels 128, 130, 148, 150 may be secured together by glue or other means known in the art.

[0025] Each of the stabilising (or bottle neck spacer) flaps 168, 168a are formed with cut line 175, 177, 175a, 177a intermediate and substantially perpendicular to fold lines 170, 172, 170a, 172a about which flaps can fold in a toggle action to define a step 191 at each end of the top panel 22. This action can occur automatically upon folding the end closure panels which brings the flaps 191 into their operative position in which the flaps are displaced out of the plane of the top panel inwardly of the carton, as shown in Figure 3b. Optionally, cut lines 175, 177; 175a, 177 are shaped to define a shaped edge adapted to cooperate with a neck portion of an article. Once displaced the, or each, stabilizing flap 168, 168a is disposed between neck portions of adjacent end of articles within the package to assist in maintaining the articles in their correct upright positions within the package, particularly to prevent the bottles topping inwardly whereas the end closure panels prevent the bottles toppling end wise of the package.

[0026] The article support and retaining means 66 is also formed whereby the article engaging flaps 68 to 78 are folded inwardly to define receiving faces as is well known, and base panels 12 and 34 are folded out of alignment with sloping heel panels 14 and 32 and lower side panels 16 and 30 respectively and the side panels and base are brought into contact with respective articles A, such that the lower portion of articles A protrude through apertures formed from the retaining means and are held in position thereto by flaps 92, 94 of retaining means, 66, shown in Figure 4. It will be appreciated that the articles support panels 80 to 90 are also moved out of alignment with lower side panel upon engagement with a portion of the article whereby a displaceable zone 192 is formed, which displaceable zone is arranged to protrude outwardly of the plane of the side walls 16, 28 to accommodate a portion of an adjacent article. It will be seen from Figure 4, the displaceable zone 192 comprises a multiplicity of connected sections 194 each occupying a different plane to the next adjacent section. More particularly, the connected sections 194 are provided by the arcuate cut lines 112, 114 as shown in Figure 2 and 4.

[0027] Thereafter, base panels 12 and 34 are brought into overlapping relationship and connected together as

hereinbefore described. Thus, the canon is in a set up and loaded condition.

[0028] The present invention and its preferred embodiment relate to an article carrier which is shaped to provide satisfactory strength to hold articles securely but with a degree of flexibility so that load transfer to the handle is absorbed by the carrier. The shape of the blank minimises the amount of paper board required and the carrier can be applied to an array of articles by hand or automatic machinery. It is anticipated that the invention can be applied to a variety of carrier and is not limited to the wrap around type. For example the top panel 22, side panels 20, 24 and end closure panels 118, 120 of the aforementioned canon can be applied to a top gripping carton and likewise the article retaining and support means 66 can be applied to other carton types, without departing from the scope of the inventions.

20 Claims

1. A carton for holding a plurality of articles in a group, which carton comprising top (22), opposed side walls (18, 26) and a base (12, 32), hingeably interconnected together to form a tubular structure wherein at least one said side walls comprises a displaceable zone (66) arranged to protrude out of the plane of the side wall to accommodate a portion of an adjacent article and wherein said displaceable zone comprises a multiplicity of connected sections each occupying a different plane to a next adjacent section.
2. A carton according to claim 1 wherein the displaceable zone is shaped to conform to the shape of the article.
3. A carton according to claim 1 or claim 2 wherein the connected sections are provided by a series of pairs of cut lines (112, 114).
4. A carton according to claim 3 wherein the cut lines are arcuate.
5. A carton as claimed in claim 3 wherein the side wall further comprises a tab (80, 82, 84; 86, 88, 90) struck from a portion of said side wall (18, 26) in which the plurality of arcuate cut lines (112, 114) are formed to define the protruding portion and wherein the cut lines are arranged in a substantially vertical plane.
6. A carton as claimed in any of claims 1 to 5 wherein there further comprises at least one article retaining flap to be folded inwardly of a side panel to retain a lower portion of an article.
7. A blank for forming a carton comprising a plurality

of articles including a shaped body portion, for example a pear shaped bottle, which carton blank comprising a top (22), opposed side walls (18, 26) and a base (12, 32) hingably interconnected together wherein the side wall comprises a plurality of cut lines (112, 114) arranged in a spaced relationship and adapted to receive the shaped body portion of said article when the carton is in the set up condition.

8. A blank as claimed in claim 7 wherein the cut lines are arcuate.
9. A blank as claimed in claim 7 or claim 8 wherein the side wall further comprises a tab (80, 82, 84; 86, 88, 90) struck from a portion of said side wall (18, 26) in which the plurality of arcuate cut lines (112, 114) are formed to define the protruding portion and wherein the cut lines are arranged in a substantially vertical plane.
10. A blank as claimed in any of claims 6 to 8 wherein there further comprises at least one article retaining flap to be folded inwardly of a side panel to retain a lower portion of an article.
11. A package comprising a plurality of articles in a group and a carton as claimed in any of claims 1 to 5.

Patentansprüche

1. Schachtel zum Halten einer Vielzahl von Artikeln in einer Gruppe, wobei die Schachtel eine Decke (22), gegenüberliegende Seitenwände (18, 26) und einen Boden (12, 32) umfasst, die gelenkig miteinander verbunden sind, um eine röhrenförmige Struktur auszubilden, wobei wenigstens eine Seitenwand eine verschiebbare Zone (66) umfasst, die angeordnet ist, aus der Ebene der Seitenwand abzustehen, um einen Abschnitt eines benachbarten Artikels unterzubringen, und wobei die verschiebbare Zone eine Vielzahl von verbundenen Sektionen umfasst, die jede eine verschiedene Ebene zu einer nächsten benachbarten Sektion belegt.
2. Schachtel nach Anspruch 1, wobei die verschiebbare Zone geformt ist, sich der Form des Artikels anzupassen.
3. Schachtel nach einem der Ansprüche 1 oder 2, wobei die verbundenen Sektionen von einer Reihe von Paaren von Stanzlinien (112, 114) bereitgestellt sind.
4. Schachtel nach Anspruch 3, wobei die Stanzlinien bogenförmig sind.

5. Schachtel nach Anspruch 3, wobei die Seitenwand ferner eine Lasche (80, 82, 84; 86, 88, 90) umfasst, die aus einem Abschnitt der Seitenwand (18, 26) ausgestanzt ist, worin die Vielzahl von bogenförmigen Stanzlinien (112, 114) ausgebildet ist, um den abstehenden Abschnitt zu definieren, und wobei die Stanzlinien in einer im Wesentlichen vertikalen Ebene angeordnet sind.
6. Schachtel nach einem der Ansprüche 1 bis 5, wobei ferner wenigstens eine Artikelrückhalteklappe umfasst wird, die von einer Seitenwandfläche nach innen gefaltet wird, um einen unteren Abschnitt eines Artikels zurückzuhalten.
7. Zuschnitt zum Ausbilden einer Schachtel, die eine Vielzahl von Artikeln umfasst, die einen geformten Körperabschnitt, beispielsweise eine birnenförmige Flasche, einschließen, wobei der Schachtelzuschnitt eine Decke (22), gegenüberliegende Seitenwände (18, 26) und einen Boden (12, 32) umfasst, die gelenkig miteinander verbunden sind, wobei die Seitenwand eine Vielzahl von Stanzlinien (112, 114) umfasst, die in einer beabstandeten Beziehung angeordnet sind und angepasst sind, den geformten Körperabschnitt des Artikels aufzunehmen, wenn sich die Schachtel im aufgerichteten Zustand befindet.
8. Zuschnitt nach Anspruch 7, wobei die Stanzlinien bogenförmig sind.
9. Zuschnitt nach einem der Ansprüche 7 oder 8, wobei die Seitenwand ferner eine Lasche (80, 82, 84; 86, 88, 90) umfasst, die aus einem Abschnitt der Seitenwand (18, 26) ausgestanzt ist, worin die Vielzahl von bogenförmigen Stanzlinien (112, 114) ausgebildet ist, um den abstehenden Abschnitt zu definieren, und wobei die Stanzlinien in einer im Wesentlichen vertikalen Ebene angeordnet sind.
10. Zuschnitt nach einem der Ansprüche 6 bis 8, wobei ferner wenigstens eine Artikelrückhalteklappe umfasst ist, die von einer Seitenwandfläche nach innen gefaltet wird, um einen unteren Abschnitt eines Artikels zurückzuhalten.
11. Verpackung umfassend eine Vielzahl von Artikeln in einer Gruppe sowie eine Schachtel nach einem der Ansprüche 1 bis 5.

Revendications

1. Carton pour transporter une pluralité d'articles en groupe, lequel carton comprend un sommet (22), des parois latérales opposées (18, 26) et une base (12, 32), interconnectés ensemble de manière arti-

- culée pour former une structure tubulaire dans laquelle au moins l'une desdites parois latérales comprend une zone déplaçable (66) placée de façon à faire saillie hors du plan de la paroi latérale pour recevoir une partie d'un article adjacent et où ladite zone déplaçable comprend une multitude de sections connectées qui occupent chacune un plan différent jusqu'à une section adjacente suivante.
- 5 11. Emballage comprenant une pluralité d'articles en groupe et un carton conforme à l'une quelconque des revendications 1 à 5.
2. Carton selon la revendication 1, dans lequel la zone déplaçable est formée de manière à se conformer à la forme de l'article. 10
3. Carton selon la revendication 1 ou 2, dans lequel les sections connectées sont fournies par une série de paires de lignes de découpées (112, 114). 15
4. Carton selon la revendication 3, dans lequel les lignes découpées sont courbées. 20
5. Carton selon la revendication 3, dans lequel la paroi latérale comprend en outre une patte (80, 82, 84 ; 86, 88, 90) découpée dans une partie de ladite paroi latérale (18, 26) dans laquelle la pluralité de lignes découpées courbées (112, 114) sont formées pour définir la partie saillante et où les lignes découpées sont disposées dans un plan sensiblement vertical. 25
6. Carton selon l'une quelconque des revendications 1 à 5 comprenant en outre au moins un rabat de retenue d'article à plier vers l'intérieur d'un panneau latéral pour retenir la partie inférieure d'un article. 30
7. Découpe pour former un carton comprenant une pluralité d'articles incluant une partie corps profilée, par exemple une bouteille en forme de poire, laquelle découpe de carton comprend un sommet (22), des parois latérales opposées (18, 26) et une base (12, 32), interconnectés ensemble de manière articulée, la paroi latérale comprenant une pluralité de lignes découpées (112, 114) espacées et adaptées pour recevoir la partie corps profilée dudit article quand le carton est monté. 35
40
8. Découpe selon la revendication 7, dans laquelle les lignes découpées sont courbées. 45
9. Découpe selon la revendication 7 ou 8, dans laquelle la paroi latérale comprend en outre une patte (80, 82, 84 ; 86, 88, 90) découpée dans une partie de ladite paroi latérale (18, 26) dans laquelle la pluralité de lignes découpées courbées (112, 114) sont formées pour définir la partie saillante et où les lignes découpées sont disposées dans un plan sensiblement vertical. 50
55
10. Découpe selon l'une quelconque des revendications 6 à 8 comprenant en outre au moins un rabat

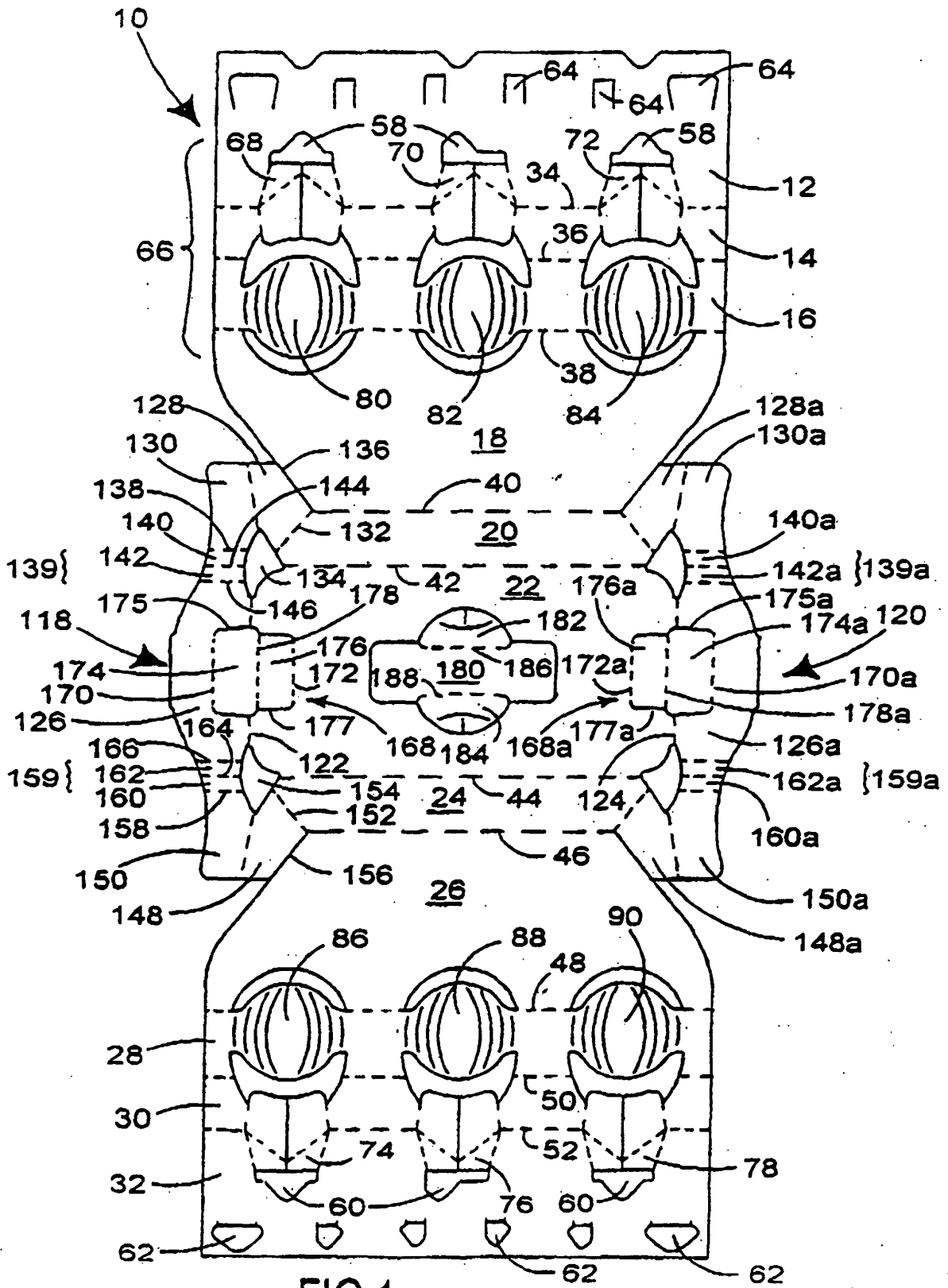


FIG. 1

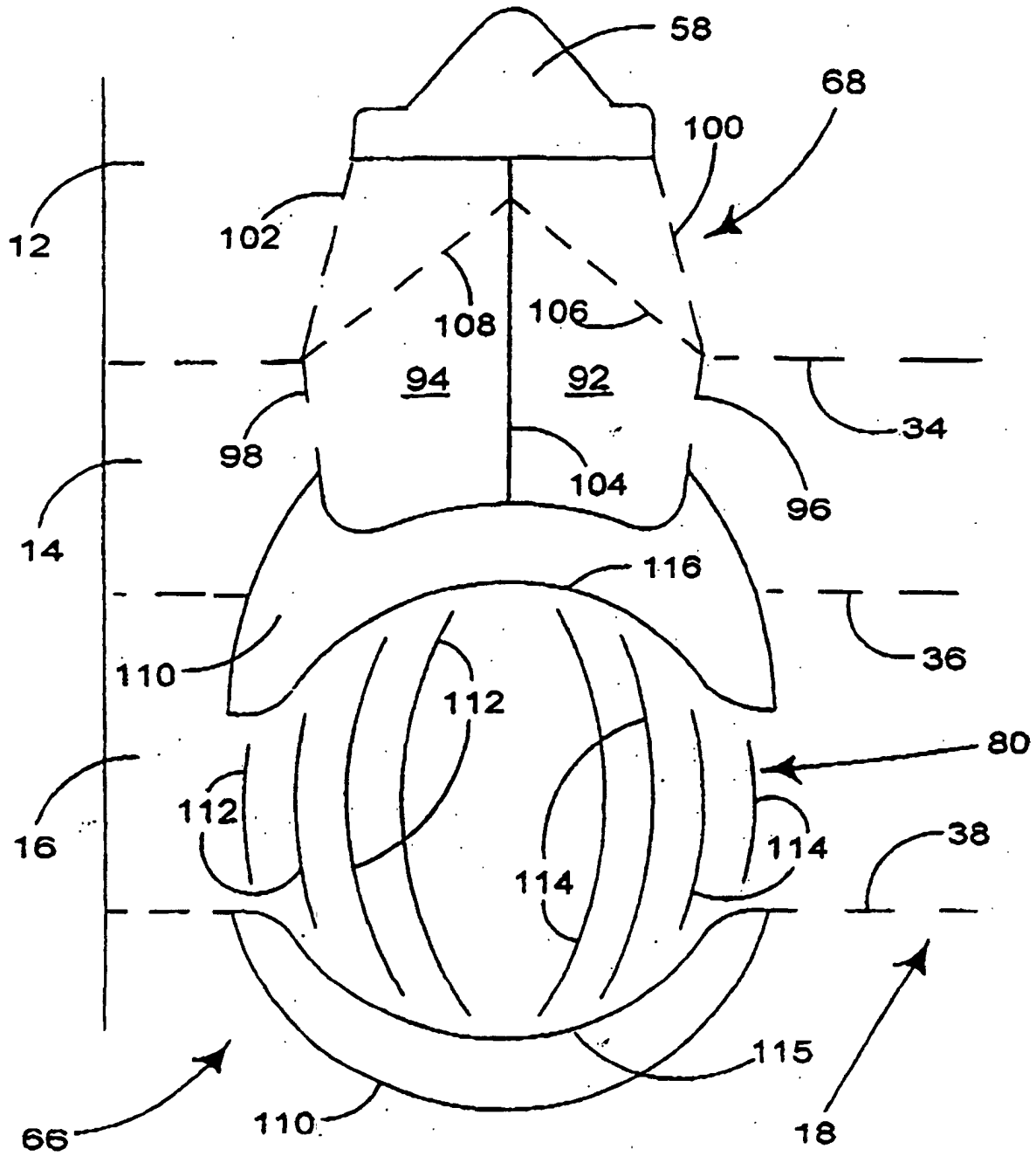
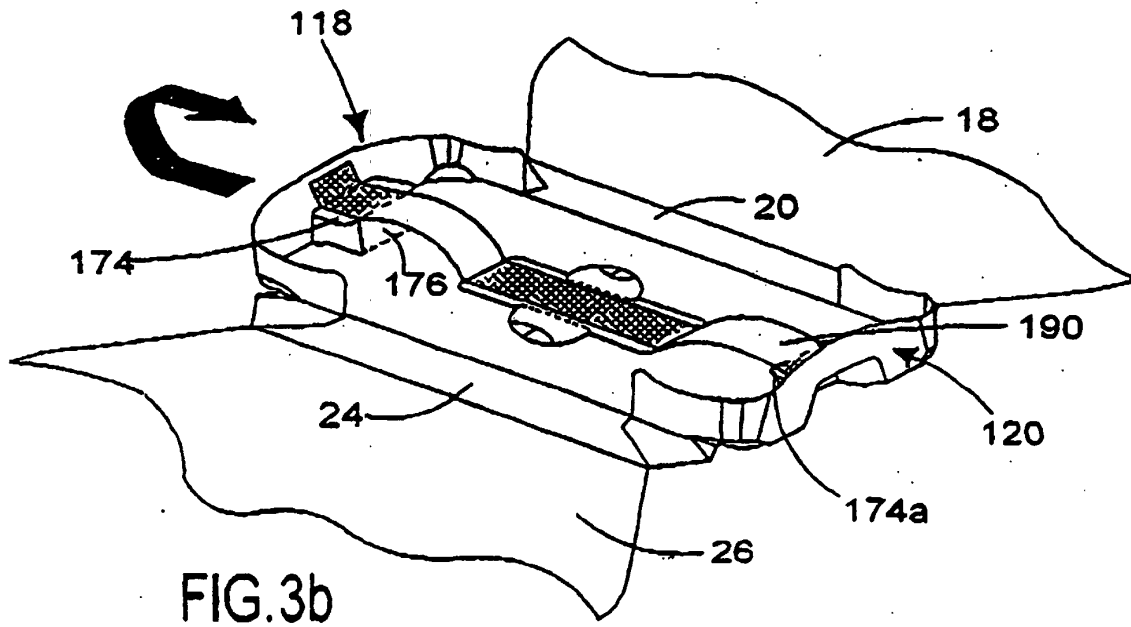
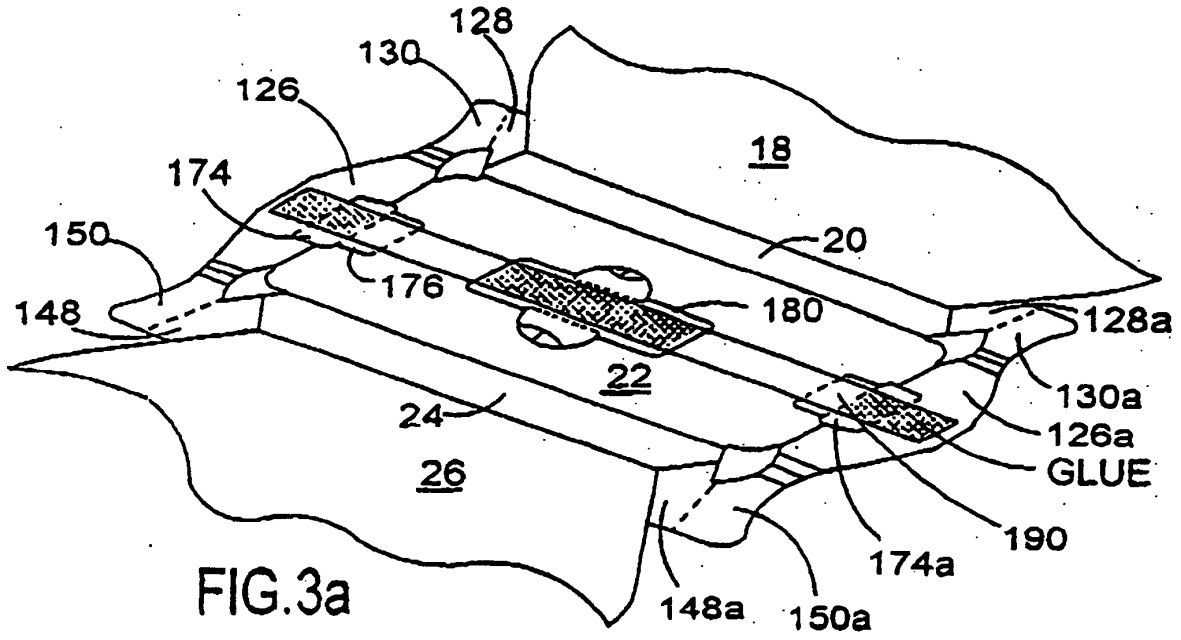


FIG.2



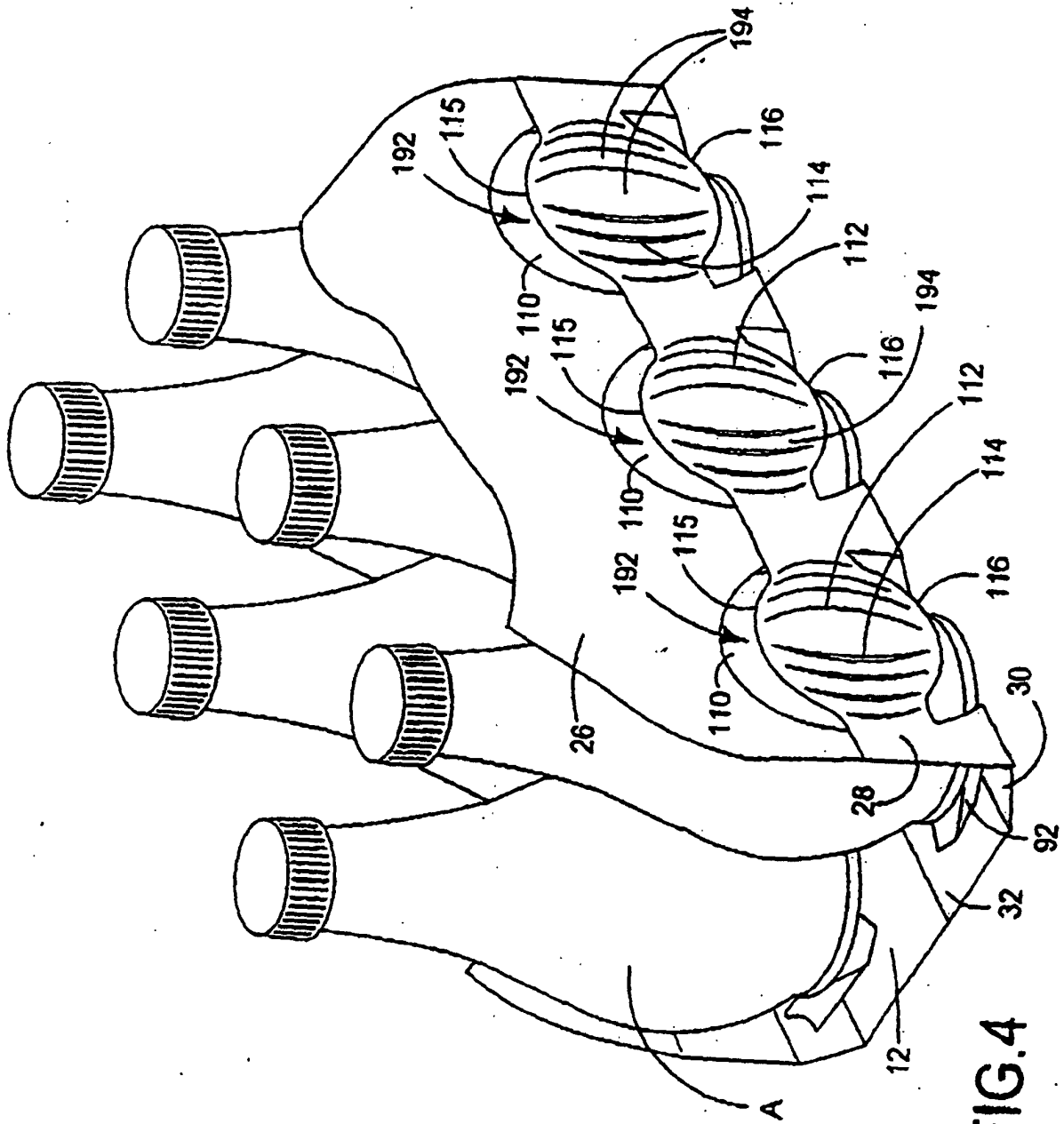


FIG. 4