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(54) **WRAP AROUND CARRIER WITH END PANELS**

UMHÜLLENDE TRAGEVERPACKUNG MIT SEITENKLAPPEN

CASIER DE TYPE ENVELOPPE A PANNEAUX D'EXTREMITÉ

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(56) References cited:
DE-A- 2 542 924 **FR-A- 2 663 613**
US-A- 5 288 013 **US-A- 5 381 891**

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Description

[0001] This invention relates to an article carrier of the wraparound type which accommodates a plurality of similar primary containers, such as bottles or parallelepiped packages (commonly referred to as 'bricks'). The article carrier includes end panels for concealing coded information present on the individual articles at each end of the carrier so the code carried by a single article is not read or registered when the code for the article carrier itself is required.

[0002] In particular, the invention provides a wraparound style carton for bricks which is wrapped from the bottom. To provide code covering panels for the carton ends, panels are cut from the bottom (or as the case may be top) and side walls. Optionally, the cover panels are used to retain the articles within the carton.

[0003] It is known to create a "large" blank by folding panels formed from other panels in an overlapped manner. For example, US 3 083 891 illustrates panels taken from carton side walls that are folded so as to extend the carton bottom wall thereby permitting a smaller blank to be used.

[0004] It is also known to form code covering panels from an interior portion of the blank and to fold them into position. US 5 381 891 (Harris) shows such a carton in which the panels are connected by fold lines to the carton side walls.

[0005] A problem associated with the prior art is that the code covering panels must be set up before the blank is applied and the part erected carton must therefore be formed and then pulled over the cans. For increased speed of packaging, a carton is preferably wrapped from the bottom up, i.e. the articles are placed onto a carton and the carton is wrapped around. This method of carton construction makes folding side panels and end panels especially complicated.

[0006] The present invention and its preferred embodiment seek to overcome or least mitigate the problems associated with the prior art. The folding operation is simplified since in some cases the blank remains flat while the carton contents are positioned on it.

[0007] One aspect of the invention provides a carton having a base, top and side panels which are interconnected to form a tubular structure for packaging a group of articles, for example, parallelepiped packages, said carton comprising an end panel for traversing an end of the tubular structure and struck from and connected to one of said top or bottom panels, said end panel having a neck portion and a strip portion which are adapted to be folded so that said neck portion abuts said top or, as the case may be, the inner surface of said base, and wherein said strip portion extends across an end of the tubular structure adjacent the outer most articles at that end of the carton.

[0008] According to an optional feature of this aspect of the invention, said end panel may cover that portion of the article which includes bar code information.

[0009] According to another optional feature of this aspect of the invention, said end panel may be partially struck from at least one side panel to define a tab which is connected to that side panel when said end panel is in use.

[0010] According to another optional feature of this aspect of the invention, said end panel may be adapted to retain said adjacent articles within the carton.

[0011] Another aspect of the invention provides a blank for forming a wraparound type carrier comprising in series a top panel, first side panel, bottom panel and second side panel hingeably connected one to next and wherein an end panel is struck from one of said top or bottom panels, said end panel having a neck portion and an end strip, wherein said neck portion is positioned adjacent the face edge of said top or bottom panel and hinged to the top or bottom panel by fold line at the base of the neck portion extends substantially between said first and second side walls.

[0012] According to an optional feature of this aspect of the invention, said end strip may be struck from at least one side panel to define a tab which is, in use, connected to that side panel.

[0013] Another aspect of the invention provides a method of producing a carton substantially hereinbefore described, which method comprises setting out the blank in a flat condition and folding each end panel out of the plane of said base panel and towards said free edge thereof thereby putting said neck portion into a face to face relationship with the inner surface of base or top panel whereby said strip is disposed alongside the remainder of said blank; loading articles onto said base panel; folding the strip portion out of alignment with said neck portion and into a substantially perpendicular relationship with said base panel and adjacent the end most articles on the base panel; folding said side walls and said top wall and connecting thereto to form a completed carton.

[0014] Preferably, said strip has foldable tabs connected to opposing sides of said strip, and the method further comprises the step of adhering each said tab to said sides.

[0015] An embodiment of the invention will now be described by way of example only, with reference to the accompanying drawings in which:

FIGURE 1 is a plan view of a blank for forming an article carrier according to the invention;

FIGURE 2 is a perspective view of the blank illustrated in Figure 1;

FIGURE 3, 4 and 5 illustrate various stages during the set up of the end panels of the invention; and

FIGURE 6 is a perspective view of the article carrier formed from a blank illustrated in Figure 1.

[0016] Referring to the drawings and in particular Figure 1 thereof there is shown a carton blank 10 for forming an article carrier made from paperboard or similar foldable sheet material. The blank 10 comprises in series top panel 12, side panel 14, base panel 16, second side panel 18 and glue flap 20 hingeably connected one to the next along fold lines 22, 24, 26 and 28 respectively. The carton is used for packaging a plurality of articles, for example, "brick style" primary containers. The bricks are arranged in three rows of three bricks, but it is envisaged the invention can be applied to any number of articles, arranged in different arrays.

[0017] As shown in Figure 1, first end panel 30 is struck from base panel 16 being offset to one side and is hingeably connected thereto by fold line 32. Fold line 32 is substantially parallel to and spaced from end edge 34 of base panel 16. End panel 30 comprises in series a neck portion 36, intermediate panel 38 and end strip 40 which extends away from end edge 34. Neck portion 36 is foldably connected to base panel 16 along fold line 32. Intermediate panel 38 is foldably connected to neck portion 36 along fold line 39 which, in this embodiment, is oppositely disposed to fold line 32. Intermediate panel 38 is substantially trapezoidal in shape. End strip 40 is foldably connected to intermediate panel 38 along fold line 42. Thus, neck portion 36, intermediate panel 38 and end strip 40 are foldably connected together in series.

[0018] In some embodiments, an intermediate panel is not required. It is envisaged that the particular shape of intermediate panel 38 is not restricted to the shape illustrated in Figure 1.

[0019] End strip 40 extends between fold lines 24 and 26 to define a pair of oppositely disposed side edges. Tab 44 is struck from a portion of side panel 14 and is hingeably connected to one of the side edges of end strip 40 by fold line 46. In this embodiment, fold line 46 is an extension of interrupted fold line 24. Likewise, locking tab 48 is struck from a portion of side panel 18 and is hingeably connected to the opposing side edge of end strip 40 being hingeably connected thereto by fold line 50. Fold line 50 is an extension of interrupted fold line 26.

[0020] A second end panel 60 is struck from base panel 16 and is substantially identical to the first end panel being a mirror image about a central longitudinal axis. End panel 60 is hingeably connected base panel 16 by fold line 62 which is substantially parallel to and spaced from end edge 64 of base panel 16. End panel 60 comprises a neck portion 66, intermediate panel 68 and end strip 70 which extends away from end edge 64. Neck portion 66 is hingeably connected base panel 16 along fold line 62. Intermediate panel 68 is foldably connected to neck portion 66 along fold line 69 which, in this embodiment, is oppositely disposed to fold line 62. Intermediate panel 68 is substantially trapezoidal in shape. End strip 70 is foldably connected to intermediate panel 68 along fold line 72. Thus, neck portion 66, intermediate panel 68 and end strip 70 are hingeably

connected together in series.

[0021] As shown in Figure 1, end strip 70 extends between fold lines 24 and 26 to define a pair of oppositely disposed side edges. Tab 74 is struck from part of side panel 14 and is hingeably connected to one of the side edges of end strip 70 along fold line 76. In this embodiment, fold line 76 is an extension of interrupted fold line 24. Likewise, locking tab 78 is struck from a portion of side panel 18 and is hingeably connected to the opposing side edge of end strip 70 being hingeably connected thereto by fold line 80. Fold line 80 is an extension of interrupted fold line 26.

[0022] The free edges of side panels 14 and 18 are shaped to provide portions of a reduced width.

[0023] The construction of a completed carrier shown in Figure 6 from a blank requires a series of sequential folding and gluing operations. The folding process is not limited to that described below and can be altered according to particular manufacturing requirements.

[0024] The folding process is illustrated in Figures 2 to 5, whereby a blank is supplied to the packaging machine in a flat condition illustrated in Figure 2.

[0025] The end panels 30, 60 are moved out of alignment with both bottom and side panels 16; 14 and 18 respectively. End panel 30 is folded 180 degrees inwardly of base panel 16 about fold line 32 such that neck portion 36 is brought into a face contacting overlapping relationship with an inner face of base panel 16 adjacent end edge 34. Likewise, end panel 60 is folded 180 degrees inwardly of base panel 16 about fold line 62 and neck portion 66 is brought into a face contacting overlapping relationship with the portion of base panel 16 adjacent end edge 64, as shown in Figure 3. It is envisaged that end panels 30, 60 can be folded outwardly instead so that the neck portions are in contact with an outer face of base panel 16.

[0026] In this embodiment, six bricks are placed onto the base panel 16 and the carton is constructed around the articles. An advantage of introducing the articles at this stage in the folding process is that it greatly simplifies the folding operation since the blank remains flat while the carton contents are positioned on it. However, it is envisaged that articles can be applied to the blank at later stages if desired.

[0027] The blank is then folded into a part erected condition illustrated in Figure 4. Thus, intermediate panel 38 is folded out of alignment with neck portion 36 about fold line 39 and into a substantially perpendicular relationship with base panel 16. Thereafter, end strip 40 is folded outwardly by 180 degrees about fold line 42 and into a face to face relationship with intermediate panel 38. Likewise, intermediate panel 68 is folded out of alignment with neck portion 66 about fold line 69 and into a substantially perpendicular relationship with base panel 16 and end strip 70 is folded outwardly by 180 degrees about fold line 72 and into a face to face relationship with intermediate panel 68.

[0028] Thereafter, connecting tab 44 is folded into a

substantially perpendicular relationship with end strip 40 about fold line 46 and tab 48 is folded about fold line 50 and into perpendicular relationship with end strip 40. The opposing end panel 60 is constructed in like manner whereby tabs 74 and 78 are folded about respective fold lines into a perpendicular relationship with end strip 70 as shown in Figure 5.

[0029] Thereafter, the side panels 14, 18 are folded out of alignment and into a perpendicular relationship with base panel 16. Side panel 14 is brought into face to face relationship with tabs 44 and 74 and interconnected by glue or other means known in the art. Side panel 18 is brought into face to face relationship with tabs 48 and 78 and connected together by glue or other means known in the art.

[0030] Top panel 12 is folded about fold line 22 and glue flap 20 is folded about fold line 28 into an overlapping relationship with top panel 12 and are connected together by glue or other means known in the art. Thus, the carton is in a set up condition as illustrated in Figure 6. The articles are retained within the carrier by the end strips 40, 70. The intermediate panels are used to provide a multiply layer to increase the integral strength of the strip. Optionally, the intermediate panels and end strips are adhered together. The position of the strip relative to the base panel can be altered according to the position of the bar code information on the individual bricks.

[0031] When removing individual bricks from the carrier after purchase, a user can grip an individual brick more easily because the side panels reveal a side portion of the outer most bricks.

[0032] The shape of the blank enables an efficient use of the board to be achieved, thus the need for complex structure is reduced with a consequent saving on paper-board. Further, carton construction can take place during bottle loading which speeds up the loading process.

[0033] The present invention and its preferred embodiment relate to an article carrier that is shaped to provide satisfactory strength to hold the articles securely but with a degree of flexibility so that the load transferred to the panels is absorbed by the carrier. The carrier can be applied to an array of articles, but hand or automatic machinery. It is anticipated that the invention can be applied to a variety of carriers and not limited to those of the wraparound type.

Claims

1. A carton having a base (16), top (12) and side panels (14, 18) which are interconnected to form a tubular structure for packaging a group of articles, for example, parallelepiped packages, said carton comprising an end panel (30) for traversing an end of the tubular structure **characterized in that** the end panel (30) is struck from and connected to one of said top or bottom panels, said end panel having

a neck portion (36) and a strip portion (40) which are adapted to be folded so that said neck portion abuts said top or, as the case may be, the inner surface of said base, and wherein said strip portion extends across an end of the tubular structure adjacent the outer most articles at that end of the carton.

2. A carton according to claim 1 wherein said end panel (30) covers that portion of the article that includes bar code information.
3. A carton according to claim 1 or claim 2 wherein said end panel is partially struck from at least one side panel (14, 18) to define a tab (44, 48) which is connected to that side panel when said end panel (30) is in use.
4. A carton according to claim 1 or claim 2 wherein said end panel (30) is adapted to retain said adjacent articles within the carton.
5. A blank for forming a wraparound type carrier comprising in series a top panel (12), first side panel (14), bottom panel (16) and second side panel (18) hingeably connected one to next **characterized in that** an end panel (30) is struck from one of said top or bottom panels, said end panel having a neck portion (36) and an end strip (40), wherein said neck portion is positioned adjacent the face edge of said top or bottom panel and hinged to the top or bottom panel by fold line (32) at the base of the neck portion extends between said first and second side walls.
6. A blank according to claim 5 wherein said end strip (40) is struck from at least one side panel to define a tab (44, 48) which is, in use, connected to that side panel.
7. A method of producing a carton of the type defined in claim 1, which method comprises setting out the blank in a flat condition and :
 - (i) folding each end panel (30) out of the plane of said base panel (16) and towards said free edge thereof thereby putting said neck portion (36) into a face to face relationship with the inner surface of base or top panel whereby said strip (40) is disposed alongside the remainder of said blank;
 - (ii) loading articles onto said base panel (16);
 - (iii) folding the strip portion (40) out of alignment with said neck portion (36) and into a substantially perpendicular relationship with said base panel and adjacent the end most articles on the base panel;
 - (iv) folding said side walls (14, 18) and said top wall (12) and connecting thereto to form a completed carton.

8. A method of producing a carton according to claim 7 wherein said strip (40) has foldable tabs (44, 48) connected to opposing sides of said strip, which method further comprises the step (after step (iii) and before step (iv)) of adhering each said tab to said sides.

Patentansprüche

1. Eine Schachtel mit einem Boden (16), einer Decke (12) und Seitenwandflächen (14, 18), die unter Ausbildung einer röhrenförmigen Struktur zur Verpackung einer Gruppe von Gegenständen, wie z.B. Parallelepipet-Packungen, miteinander verbunden sind, wobei die Schachtel eine Endwandfläche (30) zum Überbrücken eines Endes der röhrenförmigen Struktur umfasst, **dadurch gekennzeichnet, dass** die Endwandfläche (30) von der Deckenwandfläche oder der Bodenwandfläche ausgestanzt und mit dieser verbunden ist, wobei die Endwandfläche einen Halsabschnitt (36) und einen Streifenabschnitt (40) aufweist, die angepasst sind, derart gefaltet zu werden, dass der Halsabschnitt an die Decke anstößt oder gegebenenfalls an die Innenfläche des Bodens, und wobei sich der Streifenabschnitt über ein Ende der röhrenförmigen Struktur angrenzend an die äußersten Gegenstände an dem Ende der Schachtel erstreckt.
2. Schachtel nach Anspruch 1, bei der die Endwandfläche (30) den Abschnitt des Gegenstands abdeckt, der die Strichcodeinformation umfasst.
3. Schachtel nach Anspruch 1 oder 2, bei der die Endwandfläche teilweise von mindestens einer Seitenwandfläche (14, 18) ausgestanzt ist, um eine Lasche (44, 48) zu definieren, die mit der Seitenwandfläche verbunden ist, wenn die Endwandfläche (30) in Gebrauch ist.
4. Schachtel nach Anspruch 1 oder 2, bei der die Endwandfläche (30) angepasst ist, um die angrenzenden Gegenstände innerhalb der Schachtel zurückzuhalten.
5. Ein Zuschnitt zur Ausbildung eines Trägers des Umhüllungstyps, der aufeinanderfolgend eine Deckenwandfläche (12), eine erste Seitenwandfläche (14), eine Bodenwandfläche (16) und eine zweite Seitenwandfläche (18) umfasst, die gelenkig aufeinanderfolgend miteinander verbunden sind, **dadurch gekennzeichnet, dass** eine Endwandfläche (30) von der Deckenwandfläche oder der Bodenwandfläche ausgestanzt ist, wobei die Endwandfläche einen Halsabschnitt (36) und einen Endstreifen (40) aufweist, wobei der Halsabschnitt angrenzend an die Vorderkante der Deckenwandfläche oder der

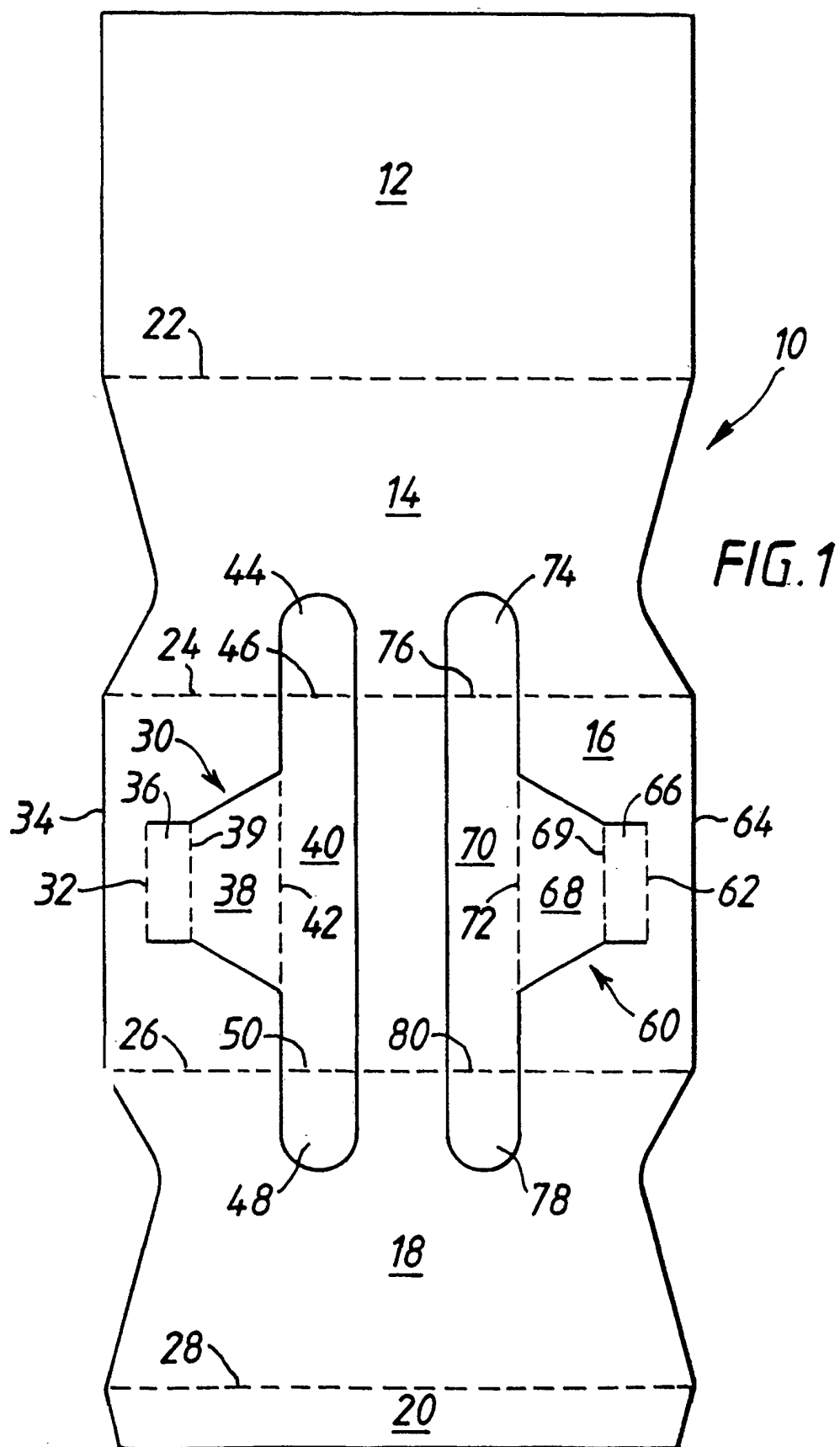
Bodenwandfläche angeordnet und durch die Faltlinie (32) gelenkig mit der Deckenwandfläche oder der Bodenwandfläche verbunden ist und wobei sich die Basis des Halsabschnitts zwischen der ersten und der zweiten Seitenwand erstreckt.

6. Zuschnitt nach Anspruch 5, bei dem der Endstreifen (40) von mindestens einer Seitenwandfläche ausgestanzt ist, um eine Lasche (44, 48) zu definieren, die in Gebrauch mit der Seitenwandfläche verbunden ist.
7. Ein Verfahren zur Herstellung einer Schachtel des in Anspruch 1 definierten Typs, wobei das Verfahren umfasst: Bereitstellen des Zuschnitts in einem flachen Zustand und
 - (i) Falten jeder Endwandfläche (30) aus der Ebene der Bodenwandfläche (16) und in Richtung ihrer freien Kante, wodurch der Halsabschnitt (36) in eine flächenberührende Beziehung mit der Innenfläche der Bodenwandfläche oder der Deckenwandfläche gebracht wird und wodurch der Streifen (40) entlang des restlichen Zuschnitts gebracht wird;
 - (ii) Aufsetzen von Gegenständen auf die Bodenwandfläche (16);
 - (iii) Falten des Streifenabschnitts (40) aus der Ausrichtung mit dem Halsabschnitt (36) heraus und in eine im Wesentlichen senkrechte Beziehung zu der Bodenwandfläche und angrenzend an die dem Ende am nächsten angeordneten Gegenstände auf der Bodenwandfläche;
 - (iv) Falten der Seitenwände (14, 18) und der Deckenwand (12) und Verbinden der Wände, um eine vollständige Schachtel auszubilden.
8. Verfahren zur Herstellung einer Schachtel nach Anspruch 7, bei dem der Streifen (40) faltbare Laschen (44, 48) aufweist, die mit gegenüberliegenden Seiten des Streifens verbunden sind, wobei das Verfahren ferner den Schritt (nach dem Schritt (iii) und vor dem Schritt (iv)) des Klebens jeder Lasche an die Seiten umfasst.

Revendications

1. Boîte en carton comportant un panneau de fond (16), un panneau de dessus (12) et des panneaux latéraux (14, 18) qui sont interconnectés pour former une structure tubulaire pour conditionner un groupe d'articles, par exemple des emballages parallélépipédiques, ladite boîte en carton comprenant un panneau d'extrémité (30) destiné à s'étendre le long d'une extrémité de la structure tubulaire, **caractérisée en ce que** le panneau d'extrémité (30) est découpé de l'un desdits panneaux de des-

- sus et de fond et relié à ce panneau, ledit panneau d'extrémité comportant une partie formant collet (36) et une partie formant bande (40) qui sont conçues pour être pliées de façon à ce que ladite partie formant collet s'appuie contre la surface intérieure dudit panneau de dessus ou, selon le cas, dudit panneau de fond, ladite partie formant bande s'étendant le long d'une extrémité de la structure tubulaire adjacente aux articles situés le plus à l'extérieur au niveau de cette extrémité de la boîte en carton. 5 10
2. Boîte en carton selon la revendication 1, dans laquelle ledit panneau d'extrémité (30) recouvre la partie de l'article qui comporte des informations de code à barres. 15
3. Boîte en carton selon la revendication 1 ou 2, dans laquelle ledit panneau d'extrémité est partiellement découpé d'au moins un panneau latéral (14, 18) pour définir une languette (44, 48) qui est reliée à ce panneau latéral lorsque ledit panneau d'extrémité (30) est en condition d'utilisation. 20
4. Boîte en carton selon la revendication 1 ou la revendication 2, dans laquelle ledit panneau d'extrémité (30) est conçu pour retenir lesdits articles adjacents à l'intérieur de la boîte en carton. 25
5. Découpe pour former une boîte de conditionnement du type enveloppe comprenant, en succession, un panneau de dessus (12), un premier panneau latéral (14), un panneau de fond (16) et un second panneau latéral (18) reliés successivement l'un à l'autre de façon rabattable, **caractérisée en ce qu'un** panneau d'extrémité (30) est découpé de l'un desdits panneaux de dessus et de dessous, ledit panneau d'extrémité comportant une partie formant collet (36) et une bande d'extrémité (40), ladite partie formant collet étant positionnée de façon adjacente au bord de face dudit panneau de dessus ou de dessous et articulée sur le panneau de dessus ou de dessous par une ligne de pliage (32) et la base de la partie formant collet s'étend entre lesdites première et seconde parois latérales. 30 35 40 45
6. Découpe selon la revendication 5, dans laquelle ladite bande d'extrémité (40) est découpée d'au moins l'un des panneaux latéraux pour définir une languette (44, 48) laquelle, en condition d'utilisation, est reliée à ce panneau latéral. 50
7. Procédé pour fabriquer une boîte en carton du type défini dans la revendication 1, le procédé consistant à installer la découpe dans une condition à plat et : 55
- (i) à plier chaque panneau d'extrémité (30) de façon à l'écarter du plan dudit panneau de fond (16) et à l'amener vers le bord libre dudit panneau de fond manière à ce que ladite partie formant collet (36) présente une relation de vis à vis avec la surface intérieure du panneau de dessous ou de dessus, ladite bande (40) étant ainsi disposée le long de la partie restante de ladite découpe ;
- (ii) à charger des articles sur ledit panneau de fond (16) ;
- (iii) à plier la partie formant bande (40) pour la désaligner par rapport à ladite partie formant collet (36) et l'amener dans une position sensiblement perpendiculaire audit panneau de fond et adjacente aux articles situés sur le panneau de fond au niveau de sa partie la plus extrême ;
- (iv) à plier lesdits panneaux latéraux (14, 18) et ledit panneau de dessus (12) et les relier pour former une boîte en carton entièrement assemblée.
8. Procédé de fabrication d'une boîte en carton selon la revendication 7, dans lequel ladite bande (40) comporte des languettes pliables (44, 48) reliées à des côtés opposés de ladite bande, le procédé comprenant, en outre, l'étape (après l'étape (iii) et avant l'étape (iv)) consistant à faire adhérer chaque dite languette auxdits côtés.



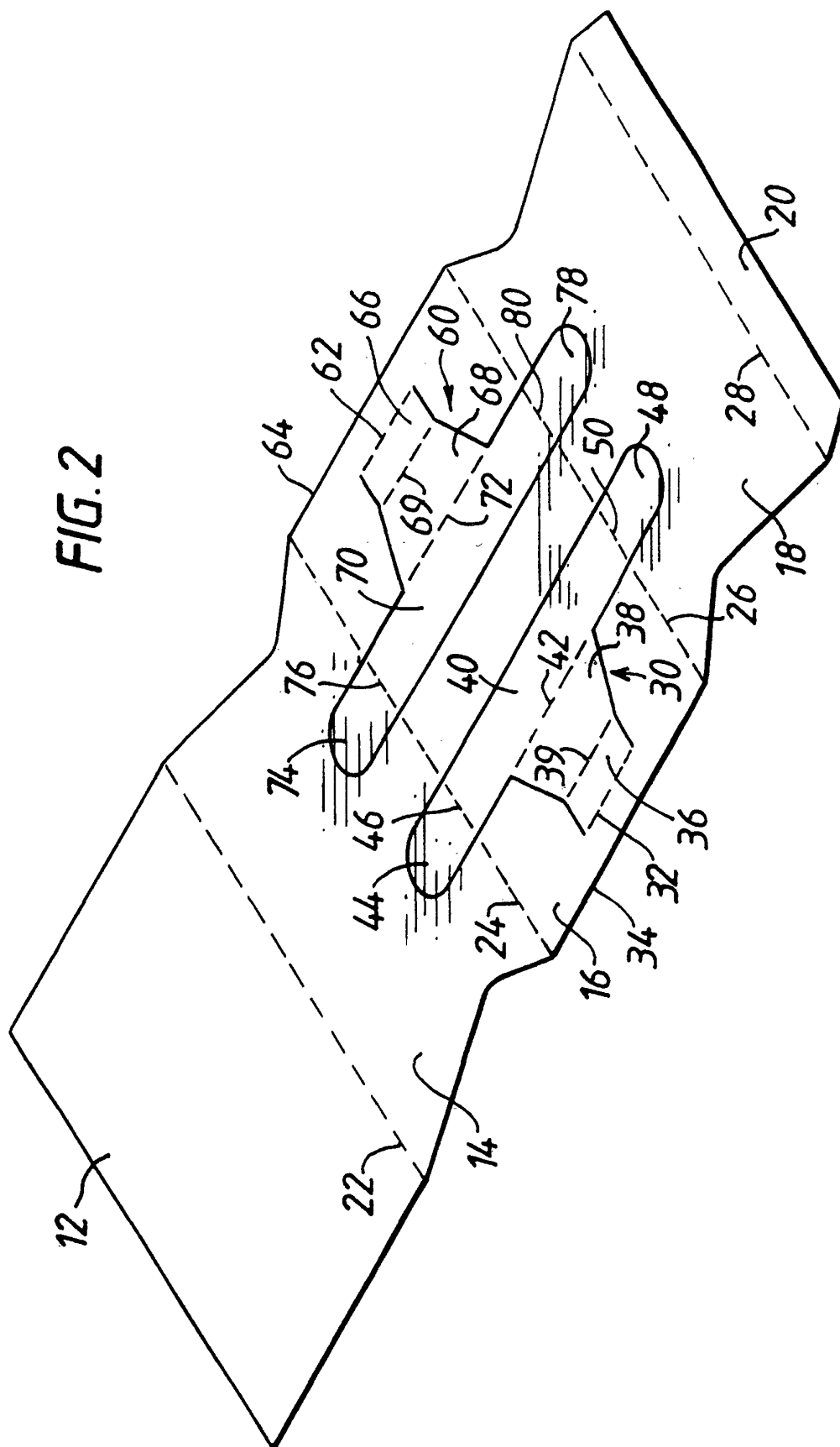


FIG. 3

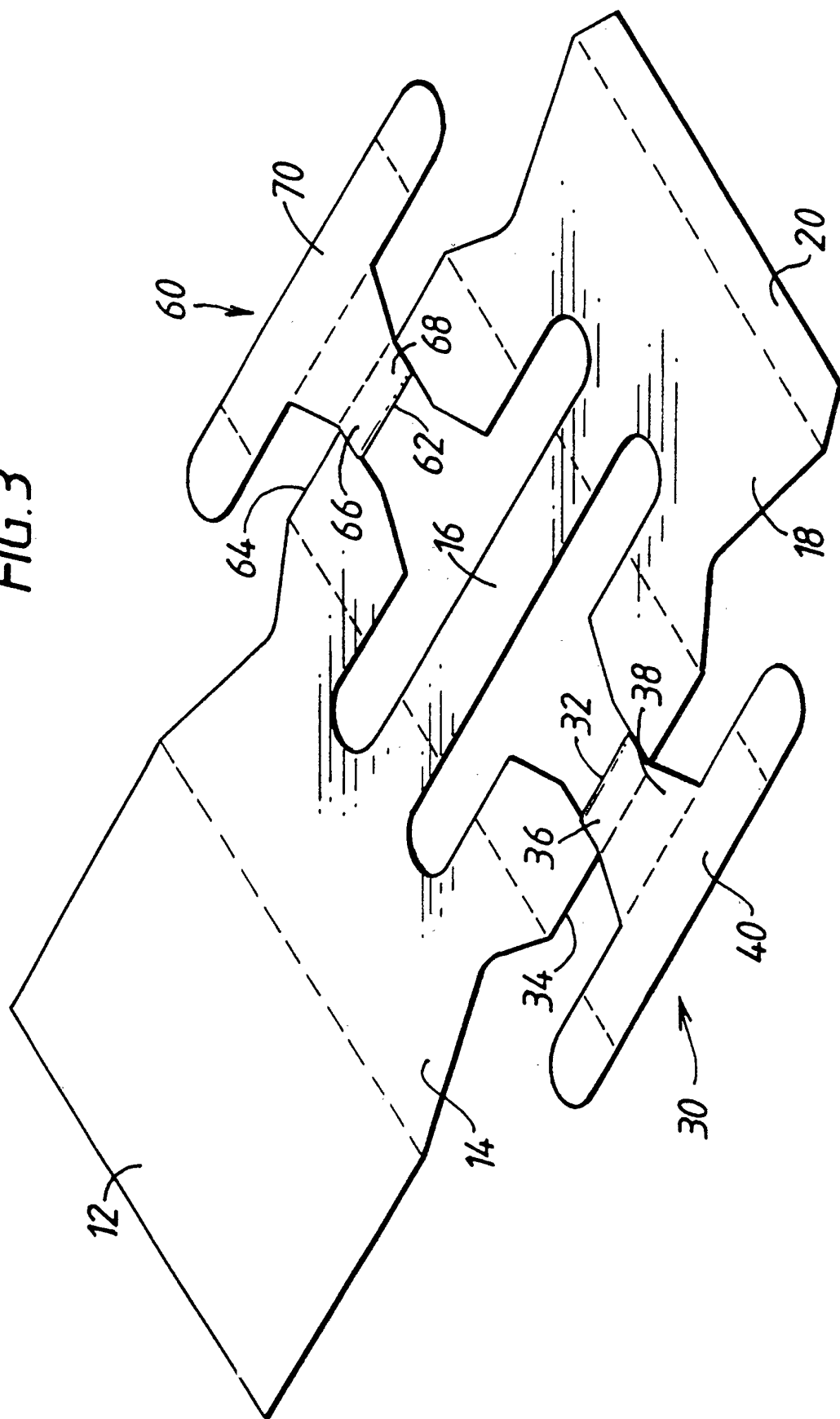


FIG. 4

