(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 1 888 412 B1**

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention of the grant of the patent:
04.08.2010 Bulletin 2010/31

(21) Application number: **06760313.4**

(22) Date of filing: **23.05.2006**

(51) Int Cl.:
B65D 5/46 *(2006.01)*

(86) International application number:
PCT/US2006/019969

(87) International publication number:
WO 2006/127734 (30.11.2006 Gazette 2006/48)

(54) **IMPROVED CARTON HANDLE**

VERBESSERTER SCHACHTELGRIFF

POIGNEE DE CARTON AMELIOREE

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI SK TR

(30) Priority: **23.05.2005 GB 0510467**

(43) Date of publication of application:
20.02.2008 Bulletin 2008/08

(73) Proprietor: **MeadWestvaco Packaging Systems LLC**
Richmond, VA 23219-0501 (US)

(72) Inventor: **LEBRAS, Philippe**
F-36000 Chateauroux (FR)

(74) Representative: **Coulson, Elizabeth Eve**
Coulson & Associates
1st Floor Suite
5 Newbold Road
Rugby CV21 2LQ (GB)

(56) References cited:
EP-A- 0 391 623
WO-A-88/09750
US-A- 4 785 991
US-A- 4 966 324
US-A1- 2004 074 954

EP 1 888 412 B1

Description

Background of the Invention

[0001] The invention relates generally to cartons for use in packaging articles, for example cans. More specifically, the invention relates to carrying handles for such cartons.

[0002] Articles, such as beverage cans or bottles, are often packaged in multiple packs so that a consumer can easily purchase a number of such articles.

[0003] For convenience of the consumer, such article carrying cartons are generally provided with a handle. Carton carrying handles struck from panels which form the body of the carton are well known in the art. The benefit of such an arrangement is one of both cost savings and simplicity.

[0004] Lifting a fully loaded carton can induce considerable stress in the carton structure, and consequently carton carrying handles need to be strong and resistant to tearing. Adding strength to cartons and handles can be achieved by using a high caliper material or using layers of material to provide reinforcement. This is not the most economical solution and carrying handles formed from layers of material often interrupt graphics and advertising that is usually printed on the carton. Without the use of reinforcement, the difficulty lies in providing a handle whose structure offers adequate strength to support the loaded carton whilst providing sufficient space for a user's hand to grasp the handle.

[0005] Cartons with carrying handles are already known in the art, for example US 4 706 876 discloses a carton with a handle opening formed in the top wall. The handle is defined by a cut line which extends across the top wall. The limitation with this design is that the cut line is prone to propagate into the adjacent side walls when the top wall deforms under the load of a filled carton. Furthermore, the deformation of the top wall is restricted by the handle arrangement and therefore the accessibility of the carrying handle is limited.

[0006] EP 0 179 571 and US 4 811 894 both disclose a carton similar to that of US '876 but with the cut line extending across the top wall and into the adjacent side walls. These arrangements allow the top wall to bow upwardly to a greater extent than in US '876 and allow the side walls to bow inwardly to brace against the articles contained within the carton. In these arrangements, the space available for the user's hand is confined to that between the top wall and the articles contained within the carton which is also rather limited.

[0007] US 2 598 051 discloses a carton for holding six cans, which has a handle formed in the top wall. The handle is defined by a cut line which extends across the top wall and into adjacent side walls. The carton also comprises fold lines which extend from the cut line to the rear corners of the carton. The fold lines co-operate to provide a handle structure that deforms above the original plane of the top wall to provide space for a user's hand. The cut line extending into the side walls also allows the side walls to brace against the circumferential surface of the cans. The bracing arrangement taught by US '051 is limited and there is a tendency for the line of separation to propagate into the side walls which may cause the handle to fail. Furthermore, the extent to which the handle can be deformed above the remainder of the top wall is also restricted.

[0008] Further exemplary handles known in the art are disclosed in EP-A-0391623 which discloses a slot type carrying handle in a multi unit carton for accommodating a number of primary containers, the carrying handle comprising an ovate slot in the carton top wall and a slit extending from opposed ends of the slot and extending into respective ones of the side walls, US-A-4966324, US-A-4785991 and US2004/074954.

[0009] It is therefore desirable to provide a handle arrangement which is simple to construct, economical in the material needed and which is readily accessible for the consumer to use. It is also desirable to provide a handle that is sufficiently strong to support the heavy load of cartons containing perhaps more than six cans or indeed a plurality of glass bottles.

[0010] The present invention seeks to overcome, or at least mitigate, the problems of the prior art.

Summary of the Invention

[0011] A first aspect of the invention provides a carton comprising a plurality of interconnected panels for forming the carton walls and comprising a carrying handle, said carrying handle being formed across at least a first one of said panels, said first panel having a pair of opposed side edges characterised by said carrying handle comprising first and second slits or frangible lines defining a handle strap (S) extending transversely of said opposed side edges and said first and second slits or frangible lines being of different lengths and/or shape such that the carrying handle is asymmetric about a notional axis extending along the length of said handle strap.

[0012] Preferably said first slit or frangible line extends into each of second and third ones of said panels hingedly connected to said opposed side edges of said first panel.

[0013] Preferably said second slit or frangible line emanates from and terminates at respective points each located within said first panel spaced from said opposed side edges respectively.

[0014] Preferably the carrying handle comprising a lifting edge (E) formed by said first slit or frangible line, a third slit or frangible line extending between the lifting edge (E) and a connection between the first panel and a connected second panel, said third slit or frangible line arranged relative to the lifting edge (E) such that the junction of that third slit or frangible line with the connection between the first panel and the second panel is spaced in front of the lifting edge (E), characterised by a side slit or frangible line extending from a first point in said second panel proximate a first notional vertical plane (L) passing

through the lifting edge (E), toward a second point in said second panel proximate a second notional vertical plane (P) passing through said junction, wherein said first point is disposed further from the first panel than said second point such that the side slit or frangible line provides a termination of the third slit or frangible line,

[0015] Preferably said third slit or frangible line is provided with an extension in said second panel, the extension is spaced in front of the notional vertical plane (L) passing through the lifting edge (E) and terminates at the first point from which the side slit or frangible line extends. Preferably proximate the first point in said second panel from which the side slit or frangible line extends, the side slit or frangible line is curvilinear in shape.

[0016] Preferably a second handle structure is provided in the first panel in mirrored relationship with said first carrying handle and wherein a side slit or frangible line of the second carrying handle is arranged similarly to that of the first carrying handle such that together the side slits or frangible lines of each carrying handle structure form an inverted "V" shape.

[0017] Preferably the or each carrying handle comprises a collapsible arrangement for transfer of lifting stresses from a lifting edge (E) of the handle strap (S) to the second panel and to the contents of the carton proximate the collapsible arrangement, the or each collapsible arrangement defined in part by a third slit or frangible line and in part by a side slit or frangible line, the side slit or frangible line is arranged such that when the carrying handle (S) is moved into a lifted position, the first point in the side wall where the side slit or frangible line terminates does not intersect the notional vertical plane (L) passing through the lifting edge (E).

[0018] Preferably a weakened line extends from the connection between the first panel and a second panel to the side slit or frangible line, wherein the weakened line terminates at the side slit or frangible line at a point on that side slit or frangible line that is spaced from the terminus of the side slit or frangible line.

[0019] Preferably a lifting edge (E) of the handle strap (S) defines a first opening in the first panel, and the second slit or frangible line defines a rear edge spaced from said lifting edge, the carrying handle is structured and arranged such that the rear edge of the carrying handle is pivotable below the plane of the first panel when the lifting edge (E) is grasped and raised above the plane of the first panel thereby causing the handle to be deployed and providing access for a user to grasp the handle for carrying the carton.

[0020] Preferably the carrying handle further comprises a hinged arrangement in said first panel, proximate each of opposed ends of said lifting edge (E), which hinged arrangement facilitates the lifting of the carrying handle.

[0021] A second aspect of the invention provides a

[0022] blank comprising a plurality of interconnected panels and a carrying handle, said carrying handle being formed across at least a first one of said panels, said first panel having a pair of opposed side edges characterised by said carrying handle comprising first and second slits or frangible lines defining a handle strap (S) extending transversely of said opposed side edges and said first and second slits or frangible lines being of different lengths and/or shape such that the carrying handle is asymmetric about a notional axis extending along the length of said handle strap.

[0023] Preferably said first Silt or frangible line extends into each of second and third ones of said panels hingedly connected to opposed side edges of said first panel.

[0024] Preferably the carrying handle comprising means for forming a lifting edge (E), a third slit or frangible line extending between said means for forming a lifting edge (E), and a connection between the first panel and a second panel, said third slit or frangible line arranged relative to said means for forming a lifting edge (E), such that the junction of the third slit or frangible line with the connection between the first panel and second panel is spaced in front of said means for forming a lifting edge (E), wherein a side slit or frangible line extending from a first point in said second panel proximate a first notional axis (L) passing through the means for forming a lifting edge (E), toward a second point in said second panel proximate a second notional axis (P) passing through said junction, wherein said first point is disposed further from the first panel than said second point such that the side slit or frangible line provides a termination of the third slit or frangible line.

[0025] Preferably the second slit or frangible line defines a rear edge of said carrying handle, said second slit or frangible line being spaced from means for forming a lifting edge (E), the carrying handle being further arranged such that, the rear edge of the carrying handle is pivotable below the plane of said first panel and the lifting edge (E) is pivotable above the plane of said first panel for providing access for the user to grasp the lifting edge when the blank is formed into a carton and the carton is carried by the carrying handle.

[0026] Preferably the carrying handle further comprises a hinged arrangement in said first panel, proximate one or each of opposed ends of said lifting edge, which hinged arrangement facilitates the lifting of the carrying handle and wherein each hinged arrangement comprises a weakened line disposed between the second slit or frangible line and a connection between said one panel and said second panel and further comprises a weakened line disposed between the means for forming the lifting edge and said connection.

Brief Description of the Drawings

[0027] An embodiment of the invention will now be described by way of example, with reference to the accompanying drawings in which:-

FIGURE 1 is a plan view of a blank from which a carton having a carrying handle according to the

present invention is formed;

FIGURE 1A is an enlarged view of the handle portion of the blank in Figure 1;

FIGURE 2 is a perspective view of a carton erected from the blank of figure 1, viewed from the top and side;

FIGURE 3 is a perspective view from the top and side of an upper portion of the carton showing the handle of the exemplary embodiment being deployed;

FIGURE 4 is a perspective view of the upper portion of the carton showing the insertion of a user's hand as the handle is deployed;

FIGURE 5 is a perspective view of the upper portion of the carton in lifted condition, with the user deploying the handle according to a first way of operating the handle;

FIGURE 6 is a side view of the handle being used as in Figure 5;

FIGURE 7 is a perspective view from the top, side and end of the handle being used as in Figure 5;

FIGURE 8 is a perspective view of the top and side showing two handle structures in lifted condition and shown without the user's hand;

FIGURE 9 is a perspective top and side view of the carton showing only one handle structure in a deployed condition and shown without a user's hand;

FIGURE 10 is a perspective view of the top, end and side of the carton showing the user deploying the handle according to a second mode of operation;

FIGURE 11 is a perspective view of the end of the carton, when the handle is lifted as in Figure 10;

FIGURE 12 is a perspective view of the carton with the handle deployed as in Figure 10; and

FIGURE 13 is a side and top view of the carton being lifted by the handle, highlighting the location of cans contained within the carton.

Detailed Description of the Preferred Embodiment

[0028] As shown in Figure 1, a first embodiment of the present invention provides a blank 10 from which a carton 30, which is shown in Figure 3, is formed. The blank 10 is vertically elongate as viewed in Figure 1 and is formed of paperboard, or other foldable material such as a plastic sheet or the like. The carton 30 of this embodiment is designed for packaging beverage cans, arranged in four rows of three cans each. It is envisaged that other articles and/or different numbers of articles may be contained within the carton 30 and that the blank 10 may therefore be sized accordingly.

[0029] The carton 30 is of a structure that is well known in the art and is only used by way of example to illustrate the handle structure of the present invention which could be applied to other carton structures. The blank 10 comprises a plurality of main panels which are hinged one to the next. The main panels include a top wall panel 16, side wall panels 14 and 18, base wall panels 12 and 20 and end closure panels 70, 72, 74, 76, 80, 70a, 72a, 74a, 76a and 80a. Web panels 34, 36, 34a and 36a are also provided and are hinged between end closure panels 80/70, 70/72, 74/76, 80a/70a, 70a/72a, 72a/74a and 74a/76a respectively. The web panels 34, 36, 34a and 36a facilitate the automatic assembly of the end closure panels 80/70, 70/72, 74/76, 80a/70a, 70a/72a, 72a/74a and 74a/76a into composite end walls.

[0030] Turning to the construction of the carton 30 from the blank 10, the side wall panel 14 is folded along fold line 24 so that it overlies the top panel 16 and side panel 18. Base wall panel 20 is then folded about fold line 28 and secured to the other base panel 12 so that together panels 12 and 20 form a composite bottom wall. The part formed blank 10 can then be opened up into a tubular structure, which can then be loaded with cans. The cans may be loaded through one or both of the open ends of the carton which are then at least partially closed using the end closure panels 80, 70, 72, 74, 76 and 80a, 70a, 72a, 74a, 76a.

[0031] The end closure panels 80/70, 70/72, 74/76, 80a/70a, 70a/72a, 72a/74a and 74a/76a for each end of the carton 30 are identical and so only one end is described herein. With the carton 30 in loaded condition, top and bottom end panels 72, 76 and 80 are folded inwardly about fold lines 46, 52 and 42 respectively, and then about fold lines 48, 54 and 40 respectively in order to form the angled corners that can be seen in Figures 2, 3, 4 and 5. End closure panel 70 is then folded inwardly about fold line 44, and end closure panel 74 is folded about fold line 50, and secured in overlapping relationship with end closure panel 74 to thereby close the end of the carton 30 as can be seen in Figure 4.

[0032] The handle structure of the exemplary embodiment will now be described with reference to Figures 1, 1A and 2. In this embodiment, two handle structures are provided which are mirrored about a first frangible line 102 which is formed in the top wall 16. The mirrored features are denoted with the suffix 'a' and, for ease of understanding, only one of the handle structures will be described in detail, it being understood that the benefit of the invention can be obtained using only one or both of the handle structures.

[0033] Each handle structure is defined by a first frangible line 102 extending into each of the first and second

side wall panels 14, 18 and terminating at an extension of the side slit 96, 96a. Each handle structure has a lifting edge E, shown most clearly in figure 3, which is defined by fold lines 100 and 106. Extending from the lifting edge of the handle toward the end of the carton 100 are a pair of diverging fold lines 106. A rear edge of the handle structure is defined by an arcuate slit or second frangible line 98.

[0034] To carry the carton 30, the handle is engaged along the lifting edge E as shown in figure 4. Handle flaps 93/93a and 95/95a provide a cushion for the user's hand. The handle structure is adaptable to be lifted by only the front lifting edge 'E' or by using the rear edge 98 as well, in which case the handle is used as a strap type handle.

[0035] In this embodiment a number of non-essential, optional features are included, such as the handle flap 95 which is struck from the top wall 16 and is defined by a portion of the first frangible line 102, side slits 104, and the lifting edge fold line 100. Further handle flaps 93 formed from the top wall 16 and defined by further portions of the first frangible line 102, the side slits 104, and fold lines 108 which are continuous with the lifting edge fold line 100 are also optional. Handle flap 95 is shown in figure 4 folded about its fold line 100 forming the lifting edge 'E'. Lifting plane 'L', which can be seen in Figure 2, is the notional vertical plane on which the lifting edge 'E' lies. In resting condition, curvilinear extensions 96 and 96a of the first frangible line 102 which are provided in each side wall 16, 18 intersect the lifting plane 'L' whereas in lifted condition, as shown in Figure 6, they do not.

[0036] The first frangible line 102 and end projections 103 lie on a notional vertical plane 'P' as shown in Figure 2. The lifting edge 'E' lies on a notional vertical plane 'L' extending between the top wall 16 and the bottom wall 12/20. The curvilinear extension 96 of the first frangible line 102 is formed in the side wall panel 14. The curvilinear extension 96 of the first frangible line 102 diverges away from the vertical plane 'P' towards the vertical plane 'L'. A similar curvilinear extension 96a of the first frangible line 102 is formed in the side wall panel 18, again the curvilinear extension 96 of the first frangible line 102 extends in the side wall 18 from a point which lies on the vertical plane 'P' towards the vertical plane on which the lifting edge 'E' lies.

[0037] The handle structure of the present embodiment is further defined by a weakened arrangement proximate each of the opposed ends of the lifting edge 'E'. Each weakened arrangement or yieldable portion comprises a portion 91 of the adjacent side panel 14 or 18. When the carton 30 is lifted by the carrying handle, the yieldable portions 91 each collapse inwardly of the carton 30 and onto the adjacent carton contents (C).

[0038] In Figures 3 and 4, the yieldable portion or displaceable gusset 91 is shown. A yieldable portion 91 is formed in each side wall panel 14/18 and is defined in part by a portion 25 of fold line 24 or 26, end projection 103 and a fold line 99. The fold line 99 extends between extension 96 of the first frangible line 103 and fold line portion 25, as shown in Figure 5.

[0039] In the preferred embodiment, fold line 99 extends from the intersection between the top wall 16 and side wall 18 to the curvilinear extension or cut line 96. The fold line 99 terminates at the cut line 96 at a point which is spaced from the terminus of the cut line 96 in the respective side wall 14 or 18. As the lifting edge E is raised above the top wall 16 during lifting, fold line 99 serves to divert the stresses imparted on the lifting edge away from the terminus of cut line 96 and onto the yieldable portions 91. Yielding portions 91 can then brace on the carton contents thereby transferring some or all of the lifting stresses to the contents.

[0040] Additional fold lines 106 are formed in the top wall 16. These fold lines 106 extend from opposed ends of the lifting edge 100 away from the first frangible line 102, and toward respective edges 24 and 26 between the top wall 16 and the respective side wall 14 or 18. Additionally, displaceable gussets 92 and 94 are defined in part by the fold lines 106, fold lines 108, a portion of the first frangible line 102 and a portion of the respective edge 24 or 26. The displaceable gussets 92 and 94 cooperate with the adjacent yieldable portions 91.

[0041] As shown in Figure1A and Figure 7, a further pair of fold lines 97 extend away from the intersection of fold lines 99 with the respective edge 24 or 26 and away from the lifting edge 'E'. A handle strap portion 90 is thus defined by the fold lines 97, and the lifting edge 'E' and fold lines 108.

[0042] In this embodiment, handle panel 90 is further defined by an arcuate slit or second frangible line 98. The arcuate slit 98 defines a rear edge of the handle panel 90 and comprises curved extensions 110 as shown in Figure 1A. The arcuate frangible line 98 is shaped concavely relative to the lifting edge 'E' whilst the end projections 110 are shaped convexly to limit further extension of the second frangible line 98 across the top wall 16 when the carrying handle is deployed. In use, handle panel 90 can provide a strap 'S' with cut line 98 defining an edge of an opening 'O' which can accommodate a user's fingers when the carrying handle is operated in this way (see figures 5, 6 and 7). In this way an asymmetric handle strap is provided in which the cut lines 102, 98 defining each side of the strap S being of differing length and/or shape.

[0043] In a second mode of operation, the rear edge of handle panel 90 can be pivoted below the plane of the top panel 16 which facilitates greater access to the lifting edge 'E', as shown in Figures 10, 11 and 13.

[0044] To form the handle, the user inserts his hand 'H' into the carton by severing frangible line 102 as can be seen in Figures 3 and 4. Handle flap 95 is then forced to fold about fold line 100 thereby defining the lifting edge 'E', and handle flaps 93 may each fold about fold lines 108. In Figures 10, 11 and 13, the preferred method of forming the handle structure is shown. The user's thumb 'T' is applied to an area of the strap portion 'S' near the second frangible line 98 and, using the handle edge 'E'

as a pivot for the hand 'H', the second frangible line 98 is severed. The thumb 'T' can then force the aforementioned area of the strap portion'S' against the adjacent can and use the contact area as a pivot about which to lever the lifting edge 'E'.

[0045] The weakened arrangement of the top wall panel defined by displaceable panel 94 and fold lines 106 and 97 allows the top panel 16 to deform, when the carton 30 is lifted. Similarly, weakened arrangements in each side wall defined by yieldable portions 91, fold line 99 and cut lines or lines of separation 103 and 96 facilitate the inward collapse of portions of the side wall panels 14, 18. Consequently, the yieldable portions 91 displace inwardly in conjunction with the upward displacement of the displaceable gussets 92 and 94, to form the handle structure.

[0046] In the absence of a second frangible line 98, lifting of the carton 30 will still cause the deformation of the top panel 16 and collapse of the side walls 14, 18, allowing the handle structure to be formed, as can be seen in figures 5, 6 and 7. In this mode of operation, the erected handle structure provides a sizeable opening 'O' for the user's hand, as can be seen in Figures 8 and 9.

[0047] In embodiments including the second frangible line 98, lifting the edge 'E' of the handle causes the strap portion 'S' to pivot such that the lifting edge 'E' is raised above the plane of the top wall panel 16 and a rearmost portion of displaceable panel 90 is rotated below the plane of the top wall panel 16. A handle structure having a leading edge 'E' that protrudes significantly above the top wall 16 and which facilitates insertion of the user's hand within the carton so that the handle can readily be grasped is therefore provided.

[0048] Alternatively or additionally, pressure can be applied to the underside of strap portion 'S' to cause it to bow and form an aperture 'A' between the second frangible line 98 and the rearmost edge of panel 90. As shown in Figure 7, the user is able to pass his fingers into the aperture 'A' and grip the strap portion 'S' of the handle thereby providing an improved grip. To lift the carton the lifting force is applied to the underside of the strap portion 'S' causing further upward bowing of the top panel and inward bowing of the side wall yieldable portions 91, which can brace against the cans 'C'. The arrangement of the side walls 14, 18 bracing against the carton contents can facilitate the transfer of the stresses caused at the lifting edge 'E' of the handle to the contents of the carton when the adaptable handle is operated in this way.

[0049] By distributing the load forces such that the stresses in the carton are predominantly tensile in nature a strong arrangement is provided. The inward collapse of the weakened portions of the side walls 14, 18 is most clearly illustrated in Figure 9. The geometry of the weakened lines or fold lines 99, 106, 108, 97 and curvilinear extensions or cut lines 96 and frangible line 102/103 facilitates the inward movement of the yieldable gusset 91 and the upward movement of handle portions 94 and 90. As the strap portion 'S' or displaceable portion 90 rotates inward of the carton 30, the lifting edge 'E' can be raised higher above the plane of the top panel 16. Further inward displacement of gusset 91 can encourage greater bracing of the adjacent region of the side wall 14, 16 onto the ends of the adjacent cans contained within the carton 30.

[0050] In lifted condition, the curvilinear extensions 110 prevent the second frangible line 98 from propagating and tearing handle strap portion 'S'. The lifting plane 'L' is positioned such that the bracing area of side walls 14 and 18 is offset from the termination of extensions 96 and 96a, when the carton 30 is lifted. This substantially prevents any lifting stresses from propagating into the extensions 96 and 96a which could cause the handle to fail. As shown in Figure 6, extensions 96 and 96a extend beyond a point of contact with the cans 'C' in the bracing area, this feature further prevents a tear from propagating along the extensions 96, 96a.

[0051] It can be appreciated that various changes may be made without departing from the scope of the present invention, for example, the size and shape of the panels may be adjusted to accommodate articles of differing size or shape. The handle arrangement may be shaped according to a variety of user requirements. Other variations may also be made within the scope of the invention, such as different handle profiles ('E', 100, 108) or different gusset geometries that achieve a similar handle structure.

[0052] In this embodiment, handle flap 95 and to some extent handle flaps 93, provide cushioning of the lifting edge 'E'. In other embodiments it is envisaged that the handle flaps 93, 95 may be omitted. In such an embodiment the first frangible line 102 may in fact comprise two separate portions extending from the termination of fold line 108 towards the intersections 24, 26 between the top wall panel 16 and the juxtaposed adjacent side panels 14 and 18. It is also anticipated that fold line 108 or in the case of an embodiment not having handle flaps 93, the edge 108 may extend from the lifting edge 100 to the intersection 24 or 26 between the top panel 16 and the adjacent side wall panel 14 or 18.

[0053] In this embodiment, the end projection 103 of first frangible line 102 is continuous with the curvilinear extension 96. In other embodiments it is envisaged that the extension 96 may not be curvilinear, but straight and extend directly between the point of intersection of frangible line 102 with the fold line 26 between the top panel 16 and adjacent side wall 18. Cut line 96 may be provided as a frangible line which may be broken when the handle structure is first used. It is also considered that extension 96 may curve in the opposite direction to that shown in the Figures or indeed may curve out at the end that terminates in the proximity of fold line 99.

[0054] Furthermore, the arrangement shown of a handle structure that can deform above the plane of the top panel 16 in which it is formed, by virtue of an arrangement of weakened lines may be used in a handle arrangement which may or may not have the feature of the side walls 14, 18 bracing against the carton contents. The use of a cut or perforated line, slit or frangible line 98 to facilitate

pivotal movement of a handle structure 90, 92, 94 above and below the plane of the top panel 16 may be employed in other handle arrangements and its application should not be construed as being limited to that described herein.

[0055] In handle arrangements employing the pivotal feature facilitated by a second frangible line 98, it is envisaged that the line 98 may take other shapes and that the handle may be arranged to provide pivotal movement of a handle panel above and below the plane of a panel in which the handle is formed using means other than that described herein without departing from the scope of the present invention. For example, the hinged arrangements provided by fold lines 97, 106 and 25 may be arranged differently.

[0056] It will be recognised that as used herein, directional references such as "top", "base", "end", "side", "inner", "outer", "upper" and "lower" do not limit the respective panels to such orientation, but merely serve to distinguish these panels from one another. Any reference to a frangible line can also be construed as a cut line, score line, perforate line or slit, without departing from the scope of invention. Also, any reference to hinged connection should not be construed as necessarily referring to a single fold line only; indeed it is envisaged that hinged connection can be formed from one or more of the following, a line of demarcation or weakened line, a score line, a frangible line or a fold line without departing from the scope of invention.

Claims

1. A carton comprising a plurality of interconnected panels (14, 16, 18) for forming the carton walls and comprising a carrying handle, said carrying handle being formed across at least a first one of said panels (16), said first panel (16) having a pair of opposed side edges (24, 26), **characterised by** said carrying handle comprising first and second slits or frangible lines (102. 98) defining a handle strap (S) extending transversely of said opposed side edges (24, 26) and said first and second slits or frangible lines (102, 98) being of different lengths and/or shape such that the carrying handle is asymmetric about a notional axis extending along the length of said handle strap.

2. A carton according to claim 1 wherein said first slit or frangible line (102) extends into each of second (18) and third (14) ones of said panels hingedly connected to said opposed side edges (26, 24) of said first panel (16).

3. A carton according to claim 2 wherein said second slit or frangible line (98) emanates from and terminates at respective points (110) each located within said first panel (16) spaced from said opposed side edges (24. 26) respectively.

4. A carton according to claims 1-3, the carrying handle comprising a lifting edge (E) formed by a fold line (100) or said first slit or frangible line (102), a third slit or frangible line (108, 108a) extending between the lifting edge (E) and a connection (26) between the first panel (16) and a connected second panel (18), said third slit or frangible line (108, 108a) arranged relative to the lifting edge (E) such that a junction of that third slit or frangible line (108, 108a)with the connection (26) between the first panel (16) and the second panel (18) is spaced in front of the lifting edge (E), wherein a side slit or frangible line (96) extends from a first point in said second panel (18) proximate a first notional vertical plane (L) passing through the lifting edge (E), toward a second point in said second panel (18) proximate a second notional vertical plane (P) passing through said junction, wherein said first point is disposed further from the first panel (16) than said second point such that the side slit or frangible line (96) provides a termination of the third slit or frangible line (108. 108a).

5. A carton according to claim 4 wherein said third slit or frangible line (108, 108a) is provided with an extension (103) in said second panel (18), the extension (103) is spaced in front of the notional vertical plane (L) passing through the lifting edge (E) and terminates at the first point from which the side slit or frangible line (96) extends.

6. A carton according to claim 4 or 5 wherein, proximate the first point in said second panel (18) from which the side slit or frangible line (96) extends, the side slit or frangible line (96) is curvilinear in shape.

7. A carton according to any of claims 1 to 6 wherein a second handle structure is provided in the first panel (16) in mirrored relationship with said first carrying handle and wherein a side slit or frangible line (96a) of the second carrying handle is arranged similarly to that of the first carrying handle such that together the side slits or frangible lines (96,96a) of each carrying handle structure form an inverted "V" shape.

8. A carton according to any preceding claim wherein the or each carrying handle comprises a collapsible arrangement (92, 91) for transfer of lifting stresses from a lifting edge (E) of the handle strap (S) to the second panel (18) and to the contents of the carton proximate the collapsible arrangement (92, 91), the or each collapsible arrangement (92, 91) defined in part by a third slit or frangible line (108, 108a) and in part by a side slit or frangible line (96), the side slit or frangible line (96) is arranged such that when the carrying handle (S) is moved into a lifted position, the first point In the side wall (18) where the side slit or frangible line (96) terminates does not intersect the notional vertical plane (L) passing through the

lifting edge (E).

9. A carton according to claim 8 wherein a weakened line (99) extends from the connection (26) between the first panel (16) and a second panel (18) to the side slit or frangible line (96), wherein the weakened line (99) terminates at the side slit or frangible line (96) at a point on that side slit or frangible line (96) that is spaced from the terminus of the side slit or frangible line (96).

10. A carton according to any preceding claim, wherein a lifting edge (E) of the handle strap (S) defines a first opening in the first panel (16), and the second slit or frangible line (98) defines a rear edge spaced from said lifting edge, the carrying handle is structured and arranged such that the rear edge of the carrying handle is pivotable below the plane of the first panel (16) when the lifting edge (E) is grasped and raised above the plane of the first panel thereby causing the handle to be deployed and providing access for a user to grasp the handle for carrying the carton.

11. A carton according to claim 10 wherein the carrying handle further comprises a hinged arrangement (106, 97) in said first panel (16), proximate each of opposed ends of said lifting edge (E), which hinged arrangement facilitates the lifting of the carrying handle.

12. A blank for forming a carton, the blank comprising a plurality of interconnected panels (14, 16, 18) and a carrying handle, said carrying handle being formed across at least a first one of said panels (16), said first panel (16) having a pair of opposed side edges (24, 26), **characterised by** said carrying handle comprising first and second slits or frangible lines (102, 98) defining a handle strap (S) extending transversely of said opposed side edges (24, 26) and said first and second slits or frangible lines (102. 98) being of different lengths and/or shape such that the carrying handle is asymmetric about a notional axis extending along the length of said handle strap.

13. A blank according to claim 12 wherein said first slit or frangible line (102) extends into each of second and third (18, 14) ones of said panels hingedly connected to opposed side edges (26, 24) of said first panel (16).

14. A blank, according to claims 12 or 13 the carrying handle comprising means (100) for forming a lifting edge (E), a third slit or frangible line (108/108a) extending between said means (100) for forming a lifting edge (E), and a connection (26) between the first panel (16) and a second panel (18), said third slit or frangible line (108/108a) arranged relative to said means (100) for forming a lifting edge (E), such that the junction of the third slit or frangible line (108/108a) with the connection between the first panel (16) and second panel (18) is spaced in front of said means (100) for forming a lifting edge (E), wherein a side slit or frangible line (96) extending from a first point in said second panel (18) proximate a first notional axis (L) passing through the means (100) for forming a lifting edge (E), toward a second point in said second panel (18) proximate a second notional axis (P) passing through said junction, wherein said first point is disposed further from the first panel (16) than said second point such that the side slit or frangible line (96) provides a termination of the third slit or frangible line (108/108a).

15. A blank according to any of claims 12 to 14 wherein the second slit or frangible line (98) defines a rear edge (98) of said carrying handle, said second slit or frangible line (98) being spaced from means for forming a lifting edge (E), the carrying handle being further arranged such that, the rear edge (98) of the carrying handle is pivotable below the plane of said first panel (16) and the lifting edge (E) is pivotable above the plane of said first panel (16) for providing access for the user to grasp the lifting edge when the blank is formed into a carton and the carton is carried by the carrying handle.

16. A blank according to claim 19 wherein the carrying handle further comprises a hinged arrangement (106, 97) in said first panel (16), proximate one or each of opposed ends of said lifting edge (100), which hinged arrangement (106, 97) facilitates the lifting of the carrying handle and wherein each hinged arrangement comprises a weakened line (97) disposed between the second slit or frangible line (98) and a connection (26) between said one panel (16) and said second panel (18) and further comprises a weakened line (106) disposed between the means for forming the lifting edge (100) and said connection (26).

Patentansprüche

1. Schachtel, umfassend eine Vielzahl von miteinander verbundenen Wandflächen (14, 16, 18) zum Ausbilden der Schachtelwände und umfassend einen Tragegriff, wobei der Tragegriff über wenigstens eine erste der Wandflächen (16) ausgebildet ist, wobei diese erste Wandfläche (16) ein Paar von gegenüberliegenden Seitenkanten (24, 26) aufweist, **dadurch gekennzeichnet, dass** der Tragegriff erste und zweite Schlitze oder Bruchlinien (102, 98) umfasst, die einen Griffstreifen (S) definieren, der sich quer von den gegenüberliegenden Seitenkanten (24, 26) erstreckt, und **dadurch**, dass die ersten und

zweiten Schlitze oder Bruchlinien (102, 98) unterschiedliche Längen und/oder unterschiedliche Formen aufweisen, so dass der Tragegriff hinsichtlich einer gedachten Achse asymmetrisch ist, die sich entlang der Länge des Griffstreifens erstreckt.

2. Schachtel nach Anspruch 1, wobei der erste Schlitz oder die erste Bruchlinie (102) sich in jede einer zweiten (18) und dritten (14) Wandfläche der Wandflächen erstrecken, die gelenkig mit den gegenüberliegenden Seitenkanten (28, 24) der ersten Wandfläche (16) verbunden sind.

3. Schachtel nach Anspruch 2, wobei der zweite Schlitz oder die zweite Bruchlinie (98) an jeweiligen Punkten (110) anfängt und endet, die jeweils innerhalb der ersten Wandfläche (16) angeordnet sind und jeweils von den gegenüberliegenden Seitenkanten (24, 26) beabstandet sind.

4. Schachtel nach einem der Ansprüche 1 bis 3, wobei der Tragegriff eine Hebekante (E) umfasst, die durch eine Faltlinie (100) oder den ersten Schlitz oder die erste Bruchlinie (102) ausgebildet wird, wobei sich ein dritter Schlitz oder eine dritte Bruchlinie (108, 108a) zwischen der Hebekante (E) und einer Verbindung (26) zwischen der ersten Wandfläche (16) und einer verbundenen zweiten Wandfläche (18) erstreckt, wobei der dritte Schlitz oder die dritte Bruchlinie (108, 108a) relativ zu der Hebekante (E) derart angeordnet sind, so dass eine Kreuzung dieses dritten Schlitzes oder dieser dritten Bruchlinie (108, 108a) mit der Verbindung (26) zwischen der ersten Wandfläche (16) und der zweiten Wandfläche (18) vor der Hebekante (E) in einem Abstand angeordnet ist, wobei ein Seitenschlitz oder eine Seitenbruchlinie (96) sich von einem ersten Punkt in der zweiten Wandfläche (18) in der Nähe einer ersten gedachten vertikalen Ebene (L), die durch die Hebekante (E) verläuft, in Richtung eines zweiten Punkts in der zweiten Wandfläche (18) in der Nähe einer zweiten gedachten vertikalen Ebene (P) erstreckt, die durch die Kreuzung verläuft, wobei der erste Punkt weiter von der ersten Wandfläche (16) als der zweite Punkt angeordnet ist, so dass der Seitenschlitz oder die Seitenbruchlinie (96) ein Ende des dritten Schlitzes oder der dritten Bruchlinie (108, 108a) bereitstellen.

5. Schachtel nach Anspruch 4, wobei der dritte Schlitz oder die dritte Bruchlinie (108, 108a) mit einer Verlängerung (103) in der zweiten Wandfläche (18) bereitgestellt ist, wobei die Verlängerung (103) vor der gedachten vertikalen Ebene (L) in einem Abstand angeordnet ist, die durch die Hebekante (E) verläuft, und an dem ersten Punkt endet, von dem sich der Seitenschlitz oder die Seitenbruchlinie (96) erstreckt.

6. Schachtel nach Anspruch 4 oder 5, wobei in der Nähe des ersten Punkts in der zweiten Wandfläche (18), von dem sich der Seitenschlitz oder die Seitenbruchlinie (96) erstreckt, der Seitenschlitz oder die Seitenbruchlinie (96) eine gekrümmte Form aufweist.

7. Schachtel nach einem der Ansprüche 1 bis 6, wobei eine zweite Griffstruktur in der ersten Wandfläche (16) in gespiegelter Beziehung mit dem ersten Tragegriff bereitgestellt ist und wobei ein Seitenschlitz oder eine Seitenbruchlinie (96a) des zweiten Tragegriffs ähnlich wie der bzw. die des ersten Tragegriffs angeordnet ist, so dass zusammen die Seitenschlitze oder Seitenbruchlinien (96, 96a) von jeder Tragegriffstruktur eine invertierte V-Form ausbilden.

8. Schachtel nach einem der vorhergehenden Ansprüche, wobei der oder jeder Tragegriff eine zusammenfaltbare Anordnung (92, 91) für die Übertragung von Hebespannungen von einer Hebekante (E) des Griffstreifens (S) auf die zweite Wandfläche (18) und auf den Inhalt der Schachtel in der Nähe der zusammenfaltbaren Anordnung (92, 91) umfasst, wobei die oder jede zusammenfaltbare Anordnung (92, 91) teilweise durch einen dritten Schlitz oder eine dritte Bruchlinie (108, 108a) und teilweise durch einen Seitenschlitz oder eine Seitenbruchlinie (96) definiert wird, wobei der Seitenschlitz oder die Seitenbruchlinie (96) derart angeordnet ist, dass dann, wenn der Tragegriff (S) in eine angehobene Position bewegt wird, der erste Punkt in der Seitenwand (18), wo der Seitenschlitz oder die Seitenbruchlinie (96) enden, nicht die gedachte vertikale Ebene (L) schneidet, die durch die Hebekante (E) verläuft.

9. Schachtel nach Anspruch 8, wobei eine geschwächte Linie (99) sich von der Verbindung (26) zwischen der ersten Wandfläche (16) und einer zweiten Wandfläche (18) zu dem Seitenschlitz oder der Seitenbruchlinie (96) erstreckt, wobei die geschwächte Linie (99) an dem Seitenschlitz oder der Seitenbruchlinie (96) an einem Punkt auf diesem Seitenschlitz oder dieser Seitenbruchlinie (96) endet, der von dem Ende des Seitenschlitzes oder der Seitenbruchlinie (96) beabstandet ist.

10. Schachtel nach einem der vorhergehenden Ansprüche, wobei eine Hebekante (E) des Griffstreifens (S) eine erste Öffnung in der ersten Wandfläche (16) definiert und der zweite Schlitz oder die zweite Bruchlinie (98) eine Rückkante definieren, die von der Hebekante beabstandet ist, wobei der Tragegriff ausgestaltet und angeordnet ist, so dass die Rückkante des Tragegriffs unter die Ebene der ersten Wandfläche (16) verschwenkt werden kann, wenn die Hebekante (E) gegriffen wird und über die Ebene der ersten Wandfläche angehoben wird, um somit

zu bewirken, dass der Griff ausgefahren wird und einem Benutzer Zugang gewährt wird, um den Griff zu greifen, um die Schachtel zu tragen.

11. Schachtel nach Anspruch 10, wobei der Tragegriff ferner eine angelenkte Anordnung (106, 97) in der ersten Wandfläche (16) in der Nähe von jedem der gegenüberliegenden Enden der Hebekante (E) umfasst, wobei die angelenkte Anordnung das Heben des Tragegriffs erleichtert.

12. Zuschnitt zum Ausbilden einer Schachtel, wobei der Zuschnitt eine Vielzahl von miteinander verbundenen Wandflächen (14, 16, 18) sowie einen Tragegriff umfasst, wobei der Tragegriff über wenigstens eine erste Wandfläche (16) der Wandflächen ausgebildet ist, wobei diese erste Wandfläche (16) ein Paar von gegenüberliegenden Seitenkanten (24, 26) aufweist, **dadurch gekennzeichnet, dass** der Tragegriff einen ersten und zweiten Schlitz oder eine erste und zweite Bruchlinie (102, 98) umfasst, die einen Griffstreifen (S) definieren, der sich quer von den gegenüberliegenden Seitenkanten (24, 26) erstreckt, und **dadurch**, dass der erste und der zweite Schlitz oder die erste und die zweite Bruchlinie (102, 98) unterschiedliche Längen und/oder Formen aufweisen, so dass der Tragegriff um eine gedachte Achse asymmetrisch ist, die sich entlang der Länge des Tragegriffs erstreckt.

13. Zuschnitt nach Anspruch 12, wobei der erste Schlitz oder die erste Bruchlinie (102) sich in jede einer zweiten (18) und dritten (14) Wandfläche der Wandflächen erstrecken, die gelenkig mit den gegenüberliegenden Seitenkanten (26, 24) der ersten Wandfläche (16) verbunden sind.

14. Zuschnitt nach Anspruch 12 oder 13, wobei der Tragegriff Mittel (100) zum Ausbilden eine Hebekante (E) umfasst, einen dritten Schlitz oder eine dritte Bruchlinie (108, 108a), die sich zwischen den Mitteln (100) zum Ausbilden einer Hebekante (E) und einer Verbindung (26) zwischen der ersten Wandfläche (16) und einer zweiten Wandfläche (18) erstreckt, wobei der dritte Schlitz oder die dritte Bruchlinie (108, 108a) relativ zu den Mitteln (100) zum Ausbilden einer Hebekante (E) derart angeordnet sind, so dass die Kreuzung des dritten Schlitzes oder der dritten Bruchlinie (108, 108a) mit der Verbindung (26) zwischen der ersten Wandfläche (16) und der zweiten Wandfläche (18) in einem Abstand vor den Mitteln (100) zum Ausbilden einer Hebekante (E) angeordnet ist, wobei ein Seitenschlitz oder eine Seitenbruchlinie (96) sich von einem ersten Punkt in der zweiten Wandfläche (18) in der Nähe einer ersten gedachten Achse (L), die durch die Mittel (100) zum Ausbilden einer Hebekante (E) verläuft, um eine Hebekante (E) auszubilden, in Richtung eines zweiten Punkts in der zweiten Wandfläche (18) in der Nähe einer zweiten gedachten Achse (P) erstreckt, die durch die Kreuzung verläuft, wobei der erste Punkt weiter von der ersten Wandfläche (16) als der zweite Punkt angeordnet ist, so dass der Seitenschlitz oder die Seitenbruchlinie (96) ein Ende des dritten Schlitzes oder der dritten Bruchlinie (108, 108a) bereitstellen.

15. Zuschnitt nach einem der Ansprüche 12 bis 14, wobei der zweite Schlitz oder die zweite Bruchlinie (98) eine Rückkante (98) des Tragegriffs definieren, wobei der zweite Schlitz oder die zweite Bruchlinie (98) von Mitteln zum Ausbilden einer Hebekante (E) beabstandet sind, wobei der Tragegriff ferner derart angeordnet ist, dass die Rückkante (98) des Tragegriffs unter die Ebene der ersten Wandfläche (16) verschwenkt werden kann und die Hebekante (E) oberhalb der Ebene der ersten Wandfläche (16) verschwenkt werden kann, um dem Benutzer Zugang zu ermöglichen, um die Hebekante zu greifen, wenn der Zuschnitt zu einer Schachtel ausgebildet wird und die Schachtel mittels des Tragegriffs getragen wird.

16. Zuschnitt nach Anspruch 15, wobei der Tragegriff ferner eine angelenkte Anordnung (106, 97) in der ersten Wandfläche (16) in der Nähe eines oder jeden gegenüberliegenden Endes der Hebekante (100) umfasst, wobei die angelenkte Anordnung (106, 97) das Heben des Tragegriffs erleichtert, und wobei jede angelenkte Anordnung eine geschwächte Linie (97) umfasst, die zwischen dem zweiten Schlitz oder der zweiten Bruchlinie (98) und einer Verbindung (26) zwischen der einen Wandfläche (16) und der zweiten Wandfläche (18) angeordnet ist und ferner eine geschwächte Linie (106) umfasst, die zwischen den Mitteln zum Ausbilden der Hebekante (100) und der Verbindung (26) verläuft.

Revendications

1. Carton comportant plusieurs panneaux interconnectés (14, 16, 18) de façon à former les parois du carton et comportant une poignée de transport, ladite poignée de transport étant formée sur au moins un premier desdits panneaux (16), ledit premier panneau (16) ayant deux bords latéraux opposés (24, 26), **caractérisé en ce que** ladite poignée de transport comporte une première et une deuxième fentes ou lignes de rupture (102, 98) qui délimitent une anse (S) s'étendant transversalement desdits bords latéraux opposés (24, 26) et lesdites première et deuxième fentes ou lignes de rupture (102, 98) sont de longueur et/ou de forme différentes de sorte que la poignée de transport est asymétrique par rapport à un axe fictif s'étendant sur la longueur de ladite anse.

2. Carton selon la revendication 1, dans lequel ladite première fente ou ligne de rupture (102) s'étend dans chacun des deuxième (18) et troisième (14) desdits panneaux reliés de manière articulée auxdits bords latéraux opposés (26, 24) dudit premier panneau (16).

3. Carton selon la revendication 2, dans lequel ladite deuxième fente ou ligne de rupture (98) commence et se termine à des points respectifs (110), chacun d'eux étant situé dans ledit premier panneau (16) et espacé desdits bords latéraux opposés, (24, 26) respectivement.

4. Carton selon les revendications 1-3, la poignée de transport comprenant un bord de levage (E) formé par une ligne de pliage (100) ou par ladite première fente ou ligne de rupture (102), une troisième fente ou ligne de rupture (108, 108a) s'étendant entre le bord de levage (E) et une union (26) entre le premier panneau (16) et un deuxième panneau (18) connecté, ladite troisième fente ou ligne de rupture (108, 108a) disposées par rapport au bord de levage (E) de telle manière qu'une jonction de cette troisième fente ou ligne de rupture (108, 108a) avec l'union (26) entre le premier panneau (16) et le deuxième panneau (18) soit espacée face au bord de levage (E), dans lequel une fente ou ligne de rupture latérale (96) s'étend depuis un premier point dans ledit deuxième panneau (18), à proximité d'un premier plan vertical imaginaire (L) passant par le bord de levage (E), vers un deuxième point dans ledit deuxième panneau (18), à proximité d'un deuxième plan vertical imaginaire (P) passant par ladite jonction, dans lequel ledit premier point est disposé plus loin par rapport au premier panneau (16) que ledit deuxième point de telle sorte que la fente ou ligne de rupture latérale (96) fournit une terminaison de la troisième fente ou ligne de rupture (108, 108a).

5. Carton selon la revendication 4, dans lequel ladite troisième fente ou ligne de rupture (108, 108a) est pourvu d'une extension (103) dans ledit deuxième panneau (18), l'extension (103) est espacé face au plan vertical imaginaire (L) passant par le bord de levage (E) et se termine au premier point à partir duquel s'étend la fente ou ligne de rupture latérale (96).

6. Carton selon la revendication 4 ou 5, dans lequel la fente ou ligne de rupture (96) présente une forme curviligne à proximité du premier point dans le deuxième panneau (18), à partir duquel s'étend la fente ou ligne de rupture latérale (96).

7. Carton selon l'une quelconque des revendications 1 à 6, dans lequel il est prévu une deuxième structure de poignée dans le premier panneau (16) dans une relation en miroir par rapport à ladite première poignée de transport, et dans lequel une fente ou ligne de rupture latérale (96a) de la deuxième poignée de transport est disposée de manière similaire à celle de la première poignée de transport, de telle sorte que les fentes ou lignes de ruptures latérales (96, 96a) de chaque structure de poignée de transport présentent ensemble une forme de "V" renversé.

8. Carton selon l'une quelconque des revendications précédentes, dans lequel la ou chaque poignée de transport comporte un agencement pliable (92, 91) pour le transfert des tensions lors du soulèvement à partir d'un bord de levage (E) de l'anse (S) au deuxième panneau (18) et au contenu du carton à proximité de l'agencement pliable (92, 91), le ou chaque agencement pliable (92, 91) étant délimité en partie par une troisième fente ou ligne de rupture (108, 108a) et en partie par une fente ou ligne de rupture latérale (96), la fente ou ligne de rupture latérale (98) est disposée de telle sorte que, lorsque la poignée de transport (S) est déplacée vers une position soulevée, le premier point dans la paroi latérale (18) où se termine la fente ou ligne de rupture latérale (96), ne croise pas le plan vertical imaginaire (L) passant par le bord de levage (E).

9. Carton selon la revendication 8, dans lequel une ligne fragilisée (99) s'étend de l'union (26) entre le premier panneau (16) et le deuxième panneau (18) vers la fente ou ligne de rupture latérale (96), dans lequel la ligne fragilisée (99) se termine à la fente ou ligne de rupture latérale (96) en un point sur cette fente ou ligne de rupture latérale (96) qui est espacé du fin de la fente ou ligne de rupture latérale (96).

10. Carton selon l'une quelconque des revendications précédentes, dans lequel un bord de levage (E) de l'anse (S) délimite une première ouverture dans le premier panneau (16), et la deuxième fente ou ligne de rupture (98) délimite un bord arrière espacé dudit bord de levage, la poignée de transport est structurée et disposée de telle sorte que le bord arrière de la poignée de transport peut pivoter au-dessous du plan du premier panneau (16), lorsque le bord de levage (E) est pris et soulevé au-dessus du plan du premier panneau, ce qui cause que la poignée se déploie et fournit à l'utilisateur l'accès lui permettant de saisir la poignée en vue de transporter le carton.

11. Carton selon la revendication 10, dans lequel la poignée de transport comporte en outre un agencement articulé (106, 97) dans ledit premier panneau (16), à proximité de chacun des bords opposés dudit bord de levage (E), et cet agencement articulé facilite le soulèvement de la poignée de transport.

12. Découpe pour former un carton, la découpe com-

portant plusieurs panneaux interconnectés (14, 16, 18) et une poignée de transport, ladite poignée de transport étant formée sur au moins un premier desdits panneaux (16), ledit premier panneau (16) ayant deux bords latéraux opposés (24, 26), **caractérisée en ce que** ladite poignée de transport comporte une première et une seconde fentes ou lignes de rupture (102, 98) qui délimitent une anse (S) s'étendant transversalement desdits bords latéraux opposés (24, 26), et lesdites première et seconde fentes ou lignes de rupture (102, 98) sont de longueur et/ou de forme différentes de sorte que la poignée de transport est asymétrique par rapport à un axe fictif s'étendant sur la longueur de ladite anse.

13. Découpe selon la revendication 12, dans lequel ladite première fente ou ligne de rupture (102) s'étend dans chacun des deuxième et troisième (18, 14) desdits panneaux reliés de manière articulée auxdits bords latéraux opposés (26, 24) dudit premier panneau (16).

14. Découpe selon les revendications 12 ou 13, la poignée de transport comprenant des moyens pour former un bord de levage (E), une troisième fente ou ligne de rupture (108, 108a) s'étendant entre lesdits moyens (100) pour former un bord de levage (E), et une union (26) entre le premier panneau (16) et un deuxième panneau (18), ladite troisième fente ou ligne de rupture (108, 108a) étant disposée par rapport auxdits moyens (100) de manière à former un bord de levage (E), de telle manière qu'une jonction de la troisième fente ou ligne de rupture (108, 108a) avec l'union entre le premier panneau (16) et le deuxième panneau (18) soit espacée face auxdits moyens (100) pour former un bord de levage (E), dans lequel une fente ou ligne de rupture latérale (96) s'étend depuis un premier point dans ledit deuxième panneau (18), à proximité d'un premier axe fictif (L) passant par les moyens (100) pour former un bord de levage (E), vers un deuxième point dans ledit deuxième panneau (18), à proximité d'un deuxième axe fictif (L) passant par ladite jonction, dans lequel ledit premier point est disposé plus loin par rapport au premier panneau (16) que ledit deuxième point de telle sorte que la fente ou ligne de rupture latérale (96) fournit une terminaison de la troisième fente ou ligne de rupture (108, 108a).

15. Découpe selon l'une quelconque des revendications 12 à 14, dans laquelle la deuxième fente ou ligne de rupture (98) délimite un bord arrière (98) de ladite poignée de transport, ladite deuxième fente ou ligne de rupture (98) étant espacée des moyens pour former un bord de levage (E), la poignée de transport étant en outre disposée de telle manière que le bord arrière (98) puisse pivoter au-dessus du plan dudit premier panneau (16) en vue de fournir à l'utilisateur l'accès lui permettant de soulever le bord de levage lorsque la découpe est montée pour former un carton et le carton est porté par la poignée de transport.

16. Découpe selon la revendication 15, dans laquelle la poignée de transport comporte en outre un agencement articulé (106, 97) dans ledit premier panneau (16), à proximité de chacun des bords opposés dudit bord de levage (100) et cet agencement articulé (106, 97) facilite le soulèvement de la poignée de transport, et dans laquelle chaque agencement articulé comporte une ligne fragilisée (97) disposée entre la deuxième fente ou ligne de rupture (98) et une union (26) entre ledit un panneau (16) et ledit deuxième panneau (18) et comporte en outre une ligne fragilisée (106) disposée entre les moyens pour former le bord de levage (100) et ladite union (26).

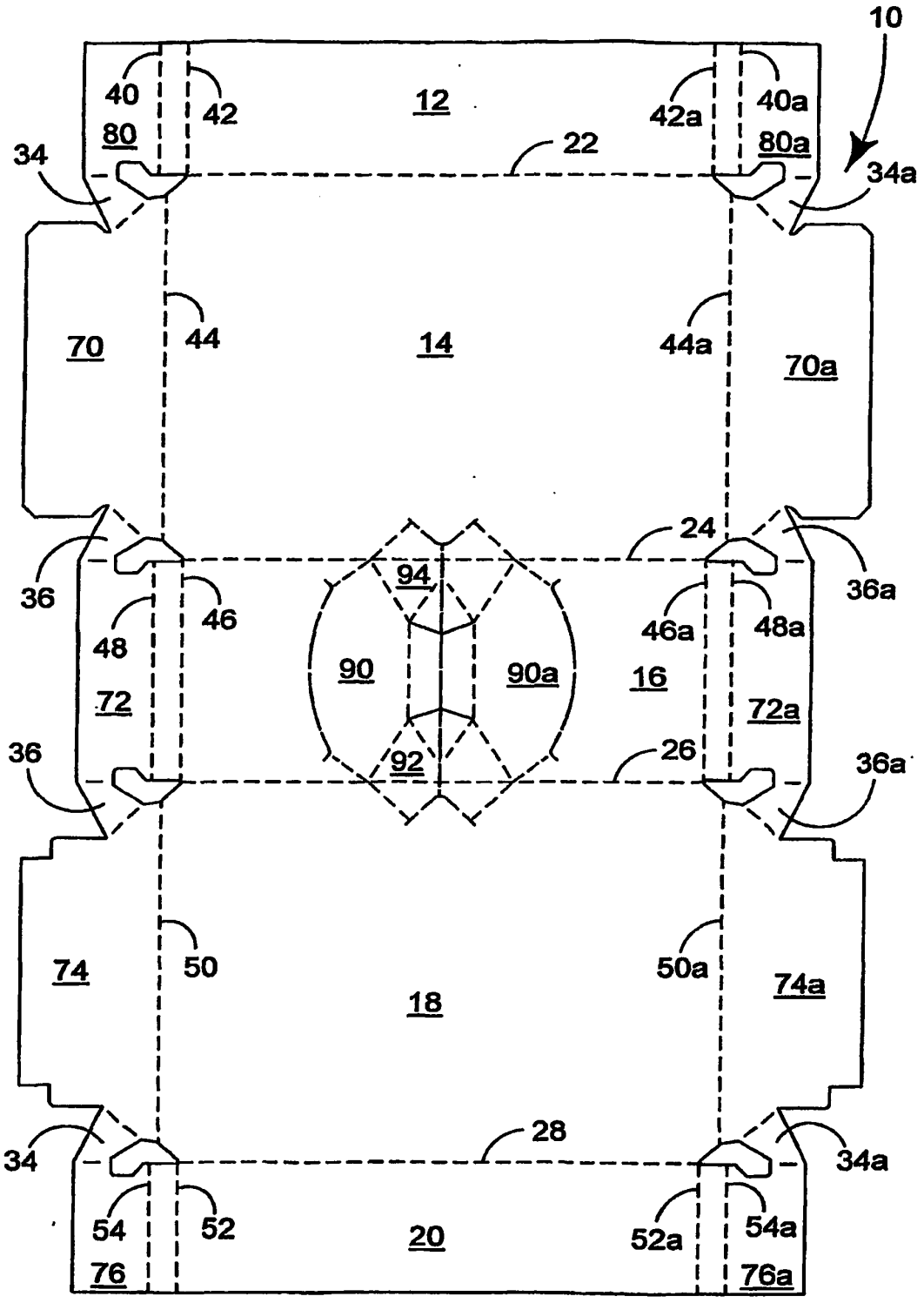
10
40
80
42
12
42a
40a
80a
22
34
34a
70
44
14
44a
70a
24
36
36a
94
46
48
46a
48a
90
90a
16
72
72a
92
26
36
36a
74
50
50a
74a
18
28
34
34a
54
52
20
52a
54a
76
76a

FIGURE 1

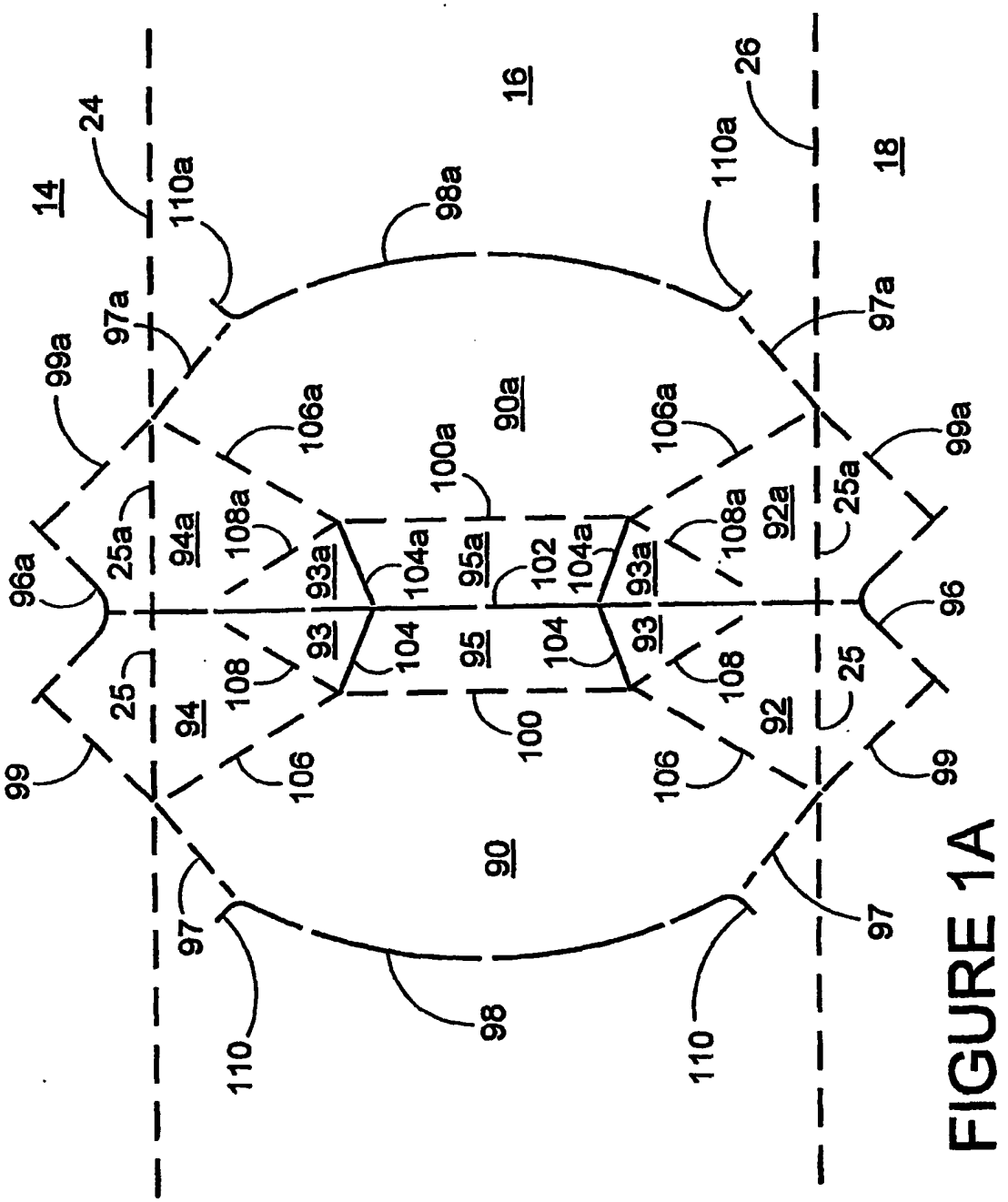
14
16
18
24
26
110a
98a
97a
99a
106a
100a
90a
96a
25a
94a
108a
93a
104a
95a
102
92a
93
104
95
108
94
25
92
96
99
106
100
90
97
98
110

FIGURE 1A

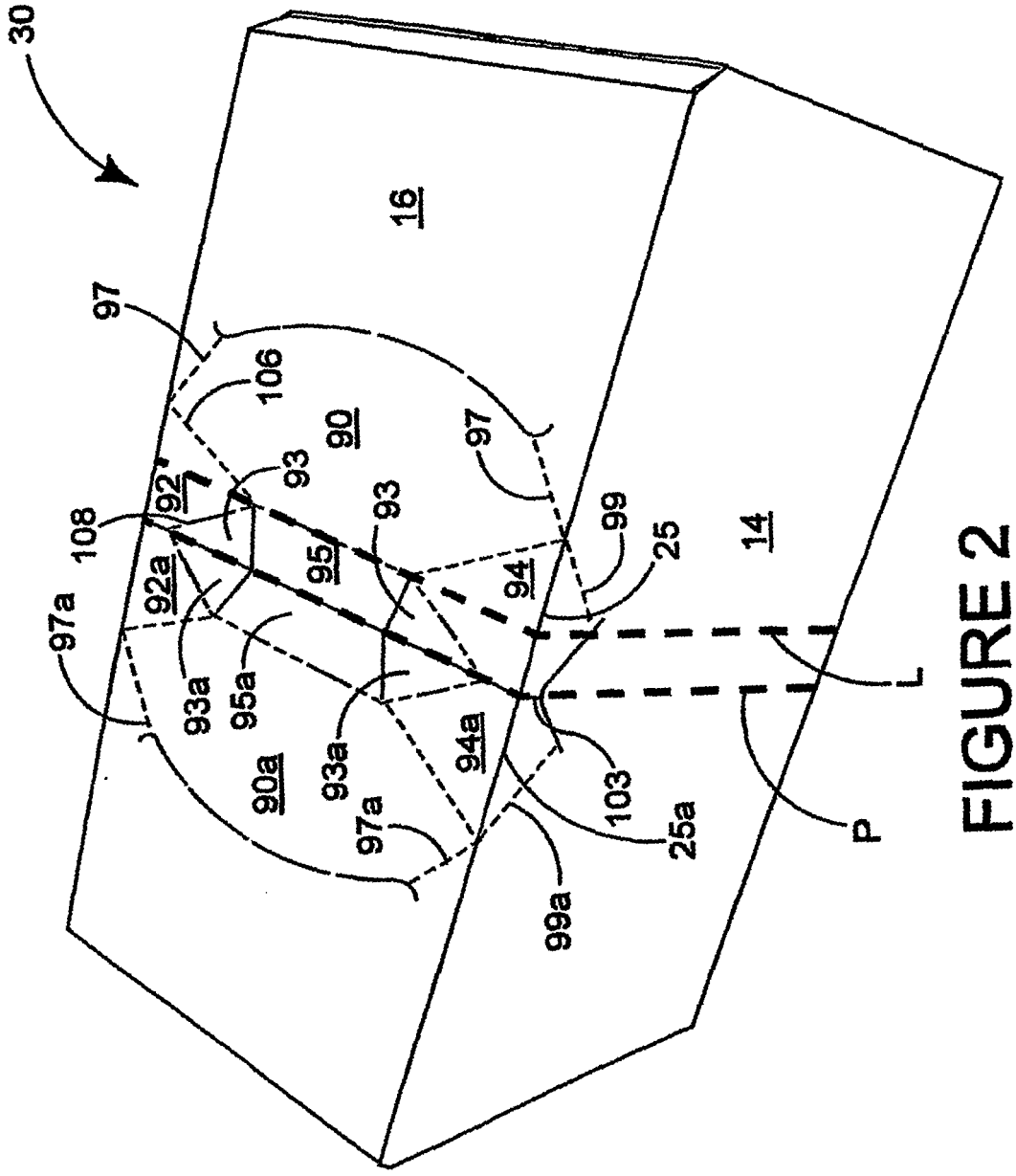
30
16
97
106
90
97
92'
93
93
108
92a
95
94
99
25
14
97a
93a
95a
90a
93a
94a
103
25a
97a
99a
L
P

FIGURE 2

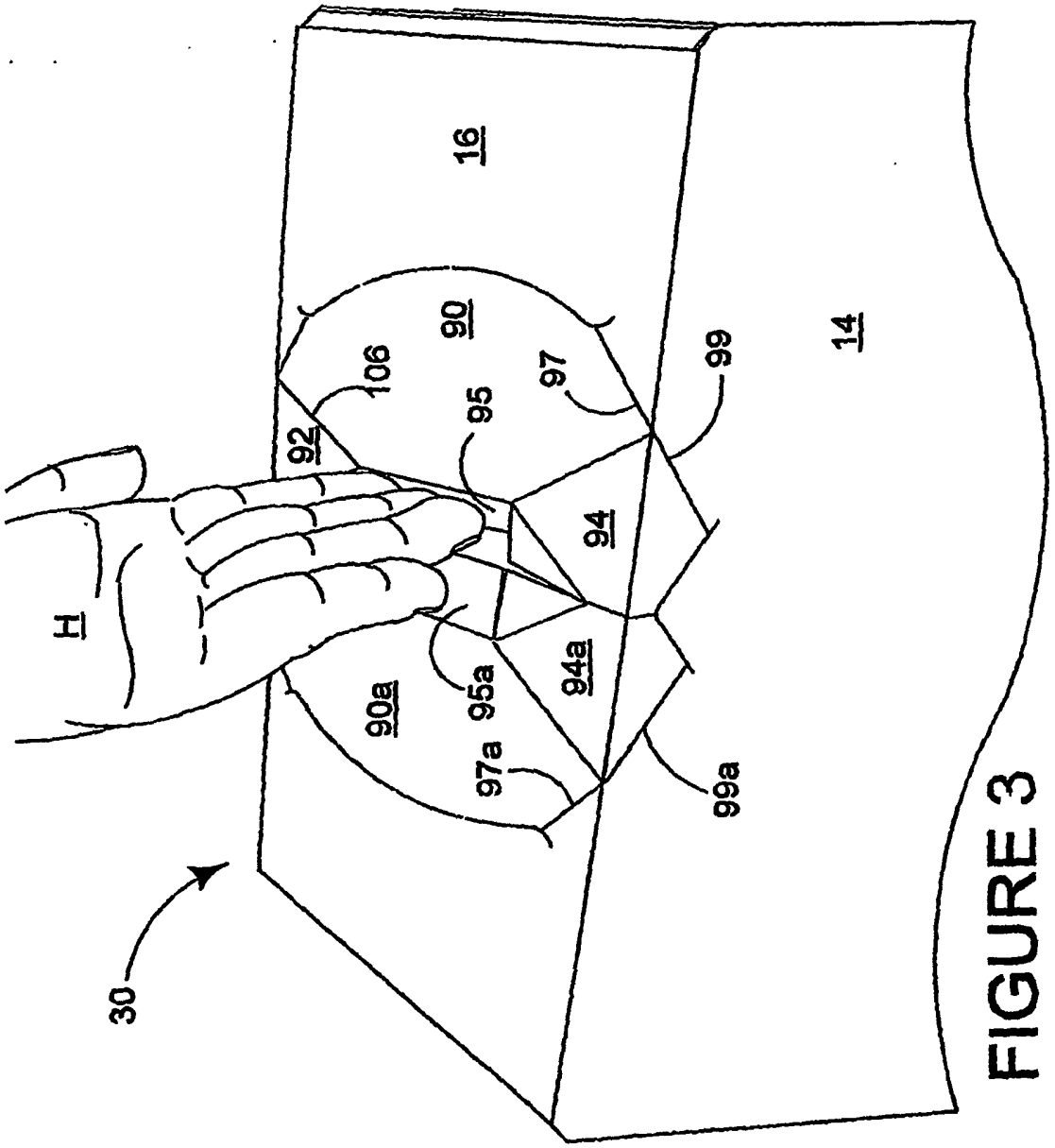

FIGURE 3

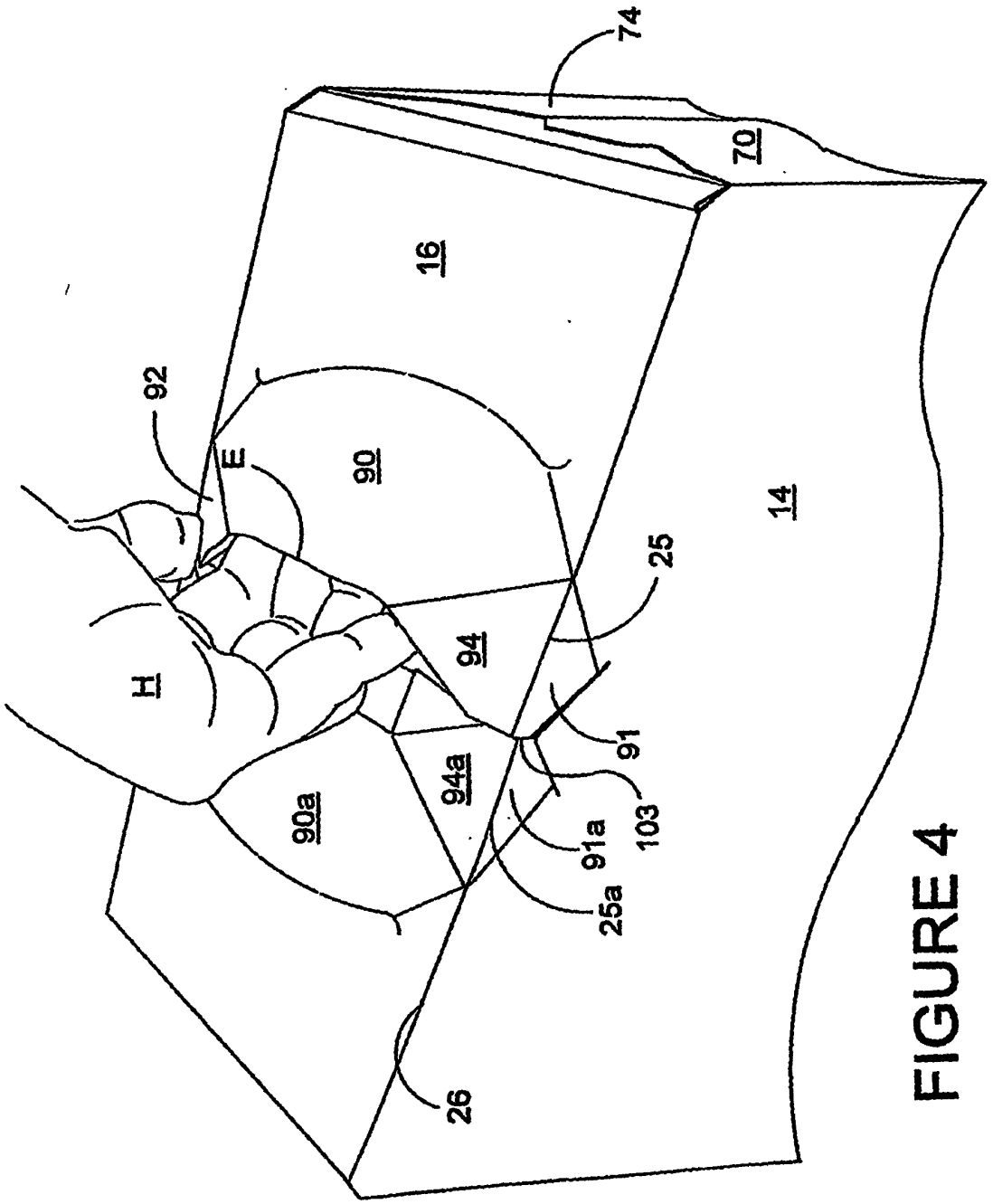

FIGURE 4

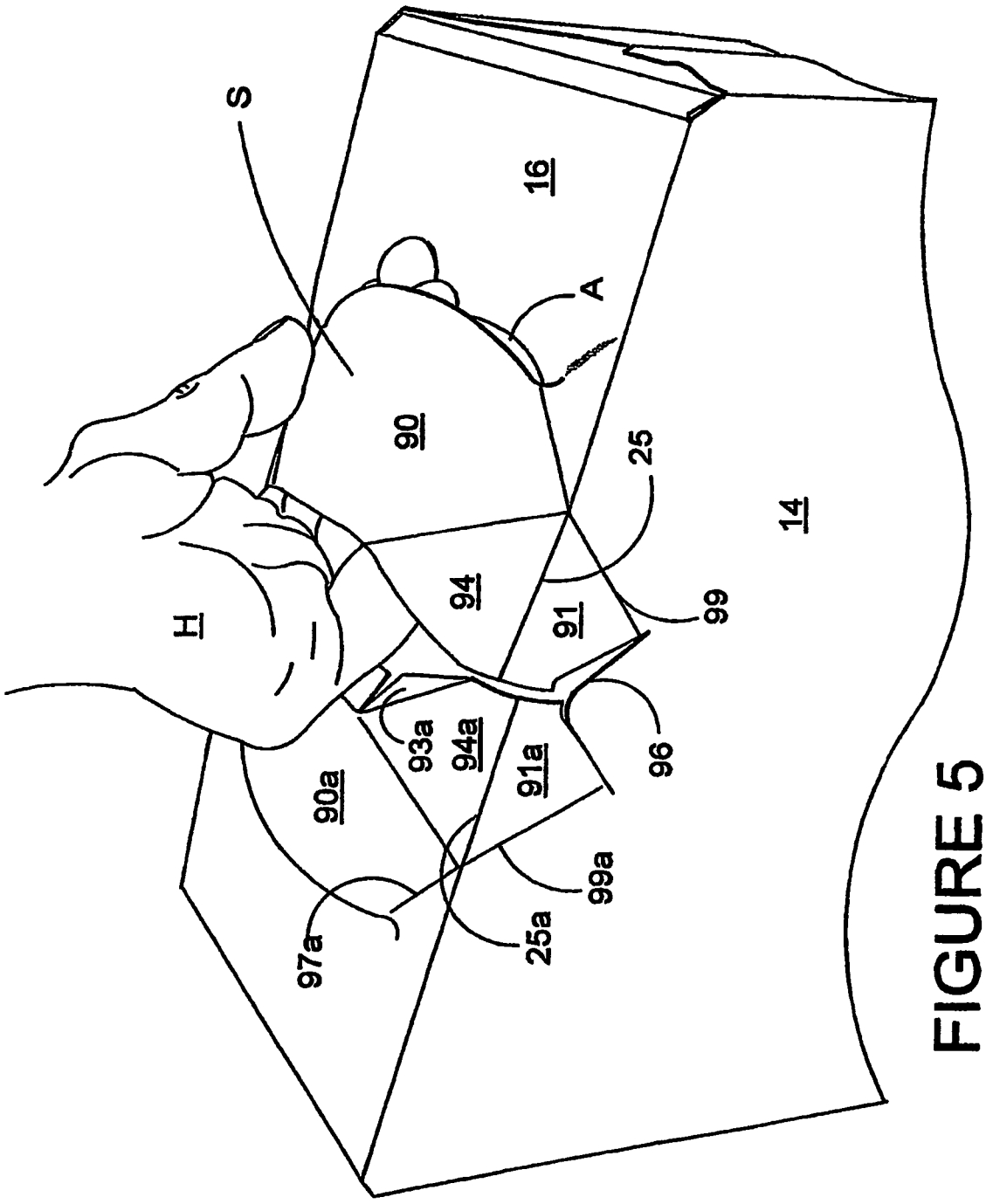

FIGURE 5

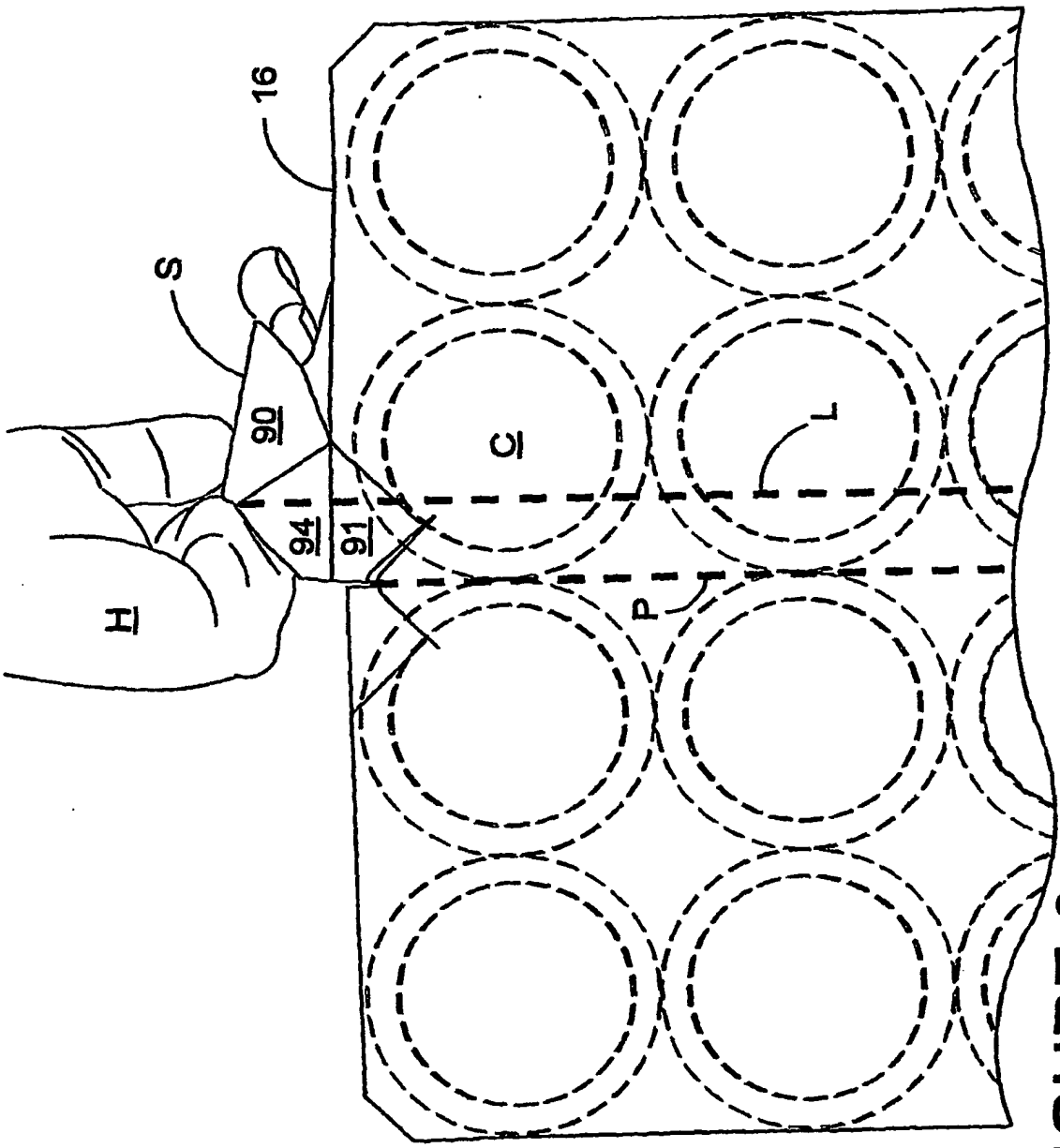

FIGURE 6

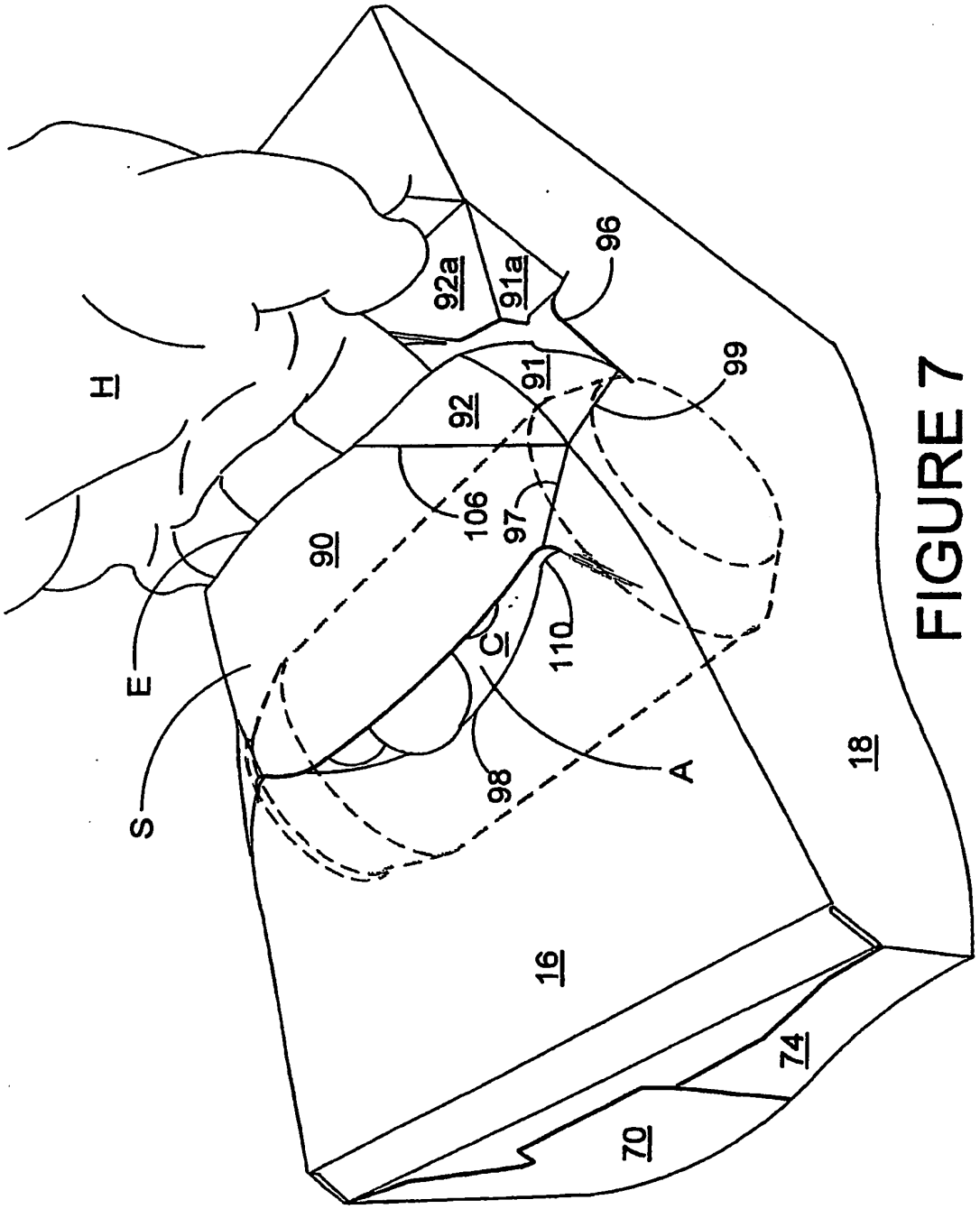

FIGURE 7

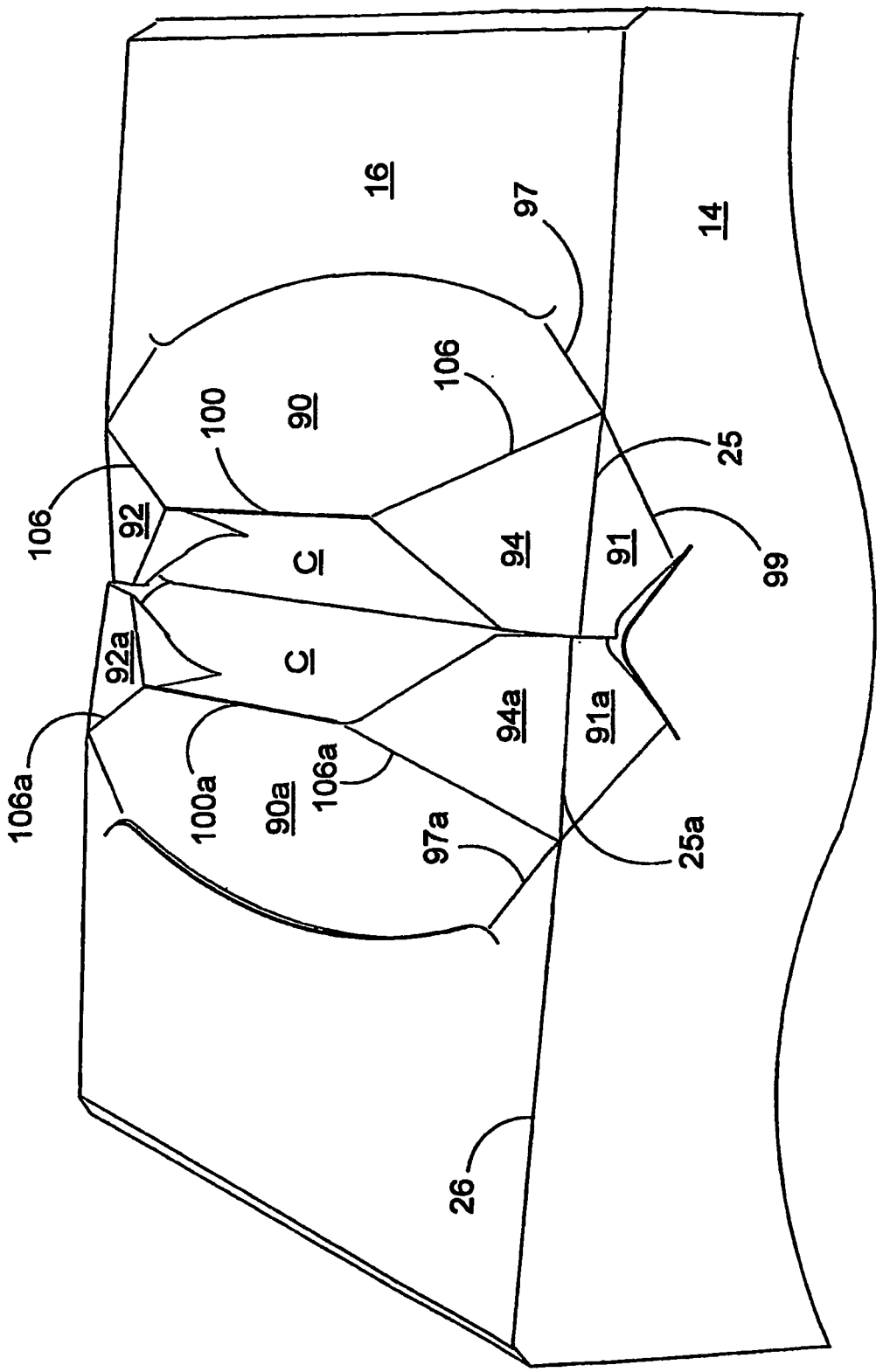
16
97
14
106
100
90
106
25
106
92
C
94
91
99
92a
C
94a
91a
106a
100a
90a
106a
97a
25a
26

FIGURE 8

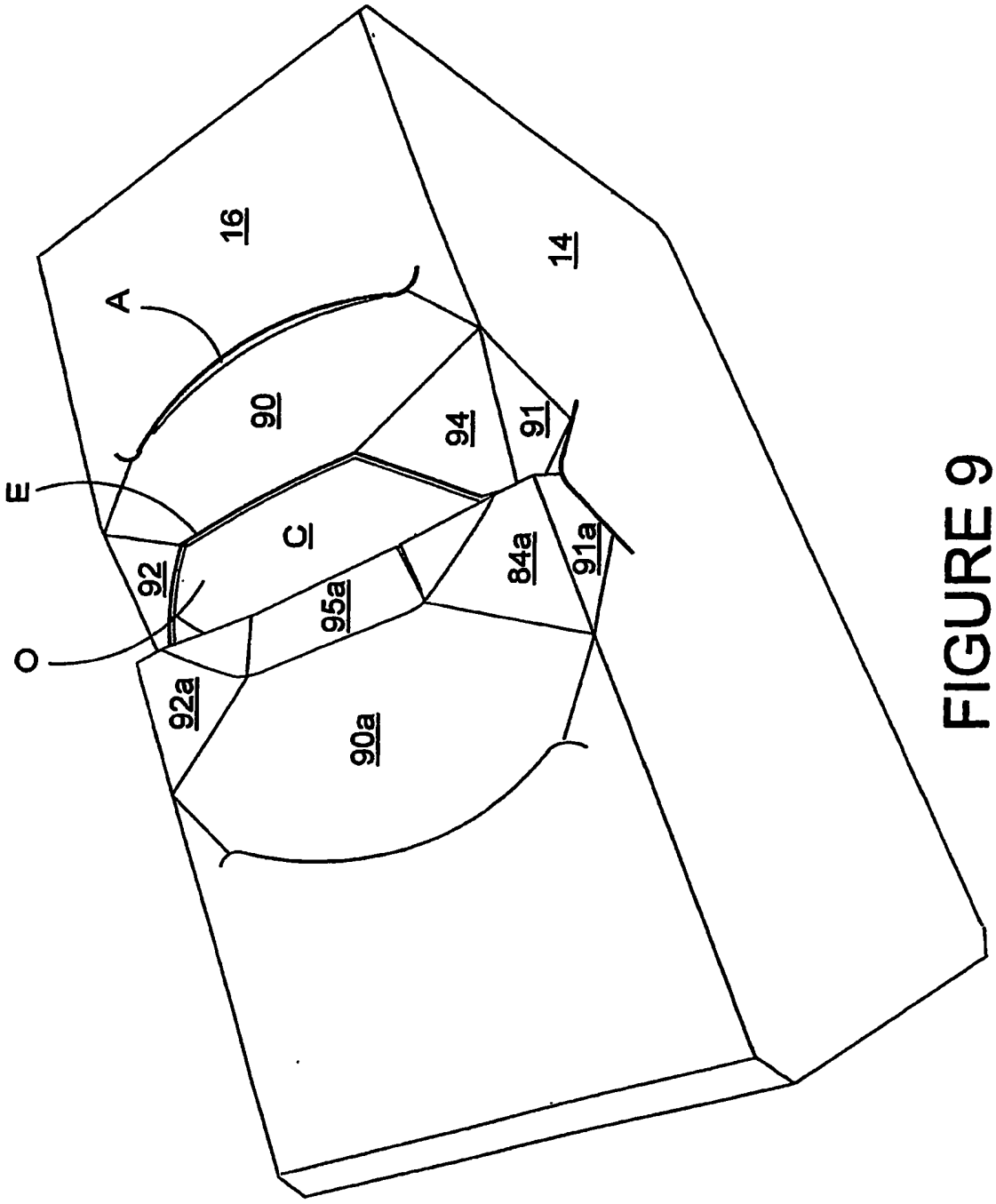

FIGURE 9

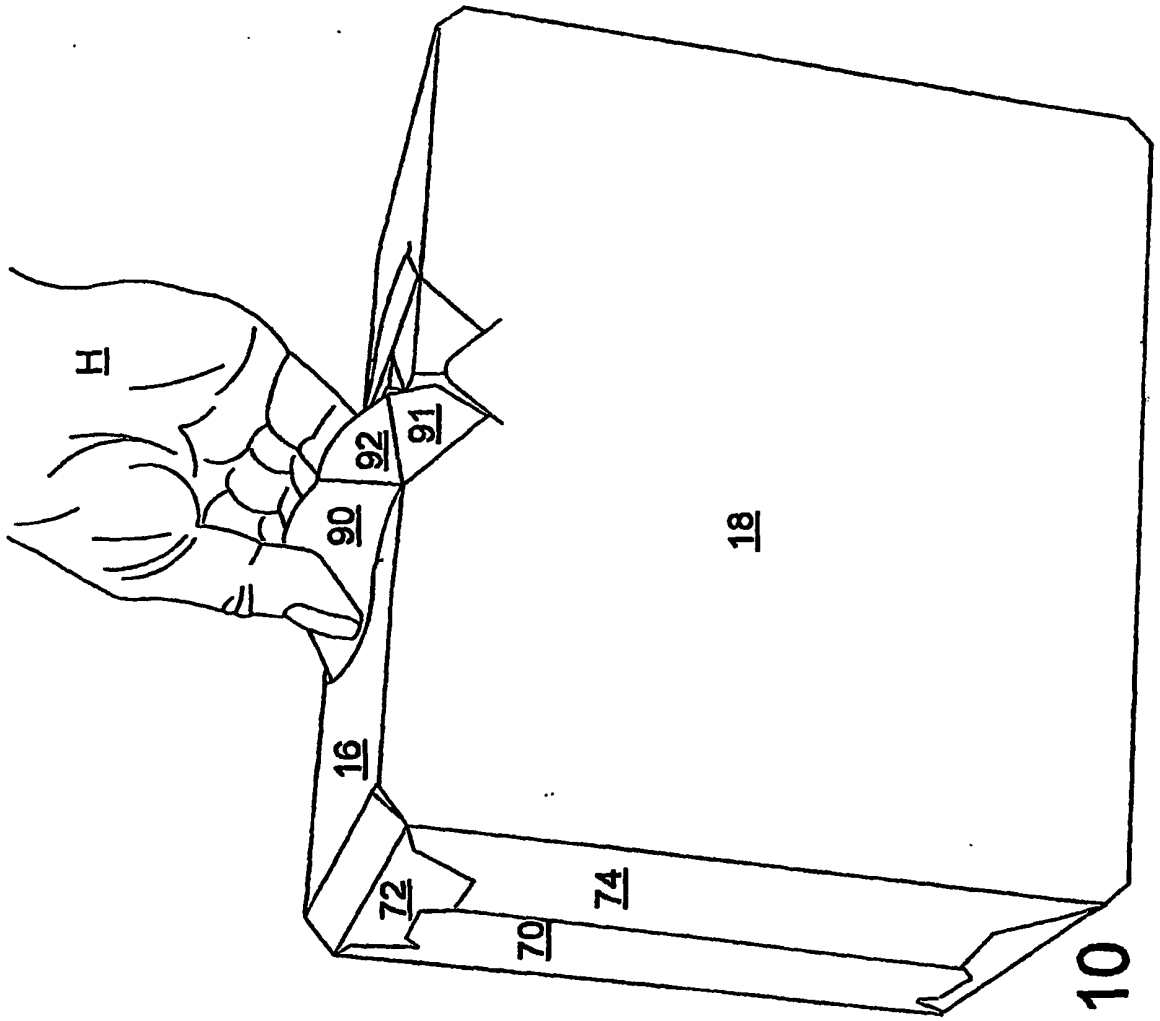

FIGURE 10

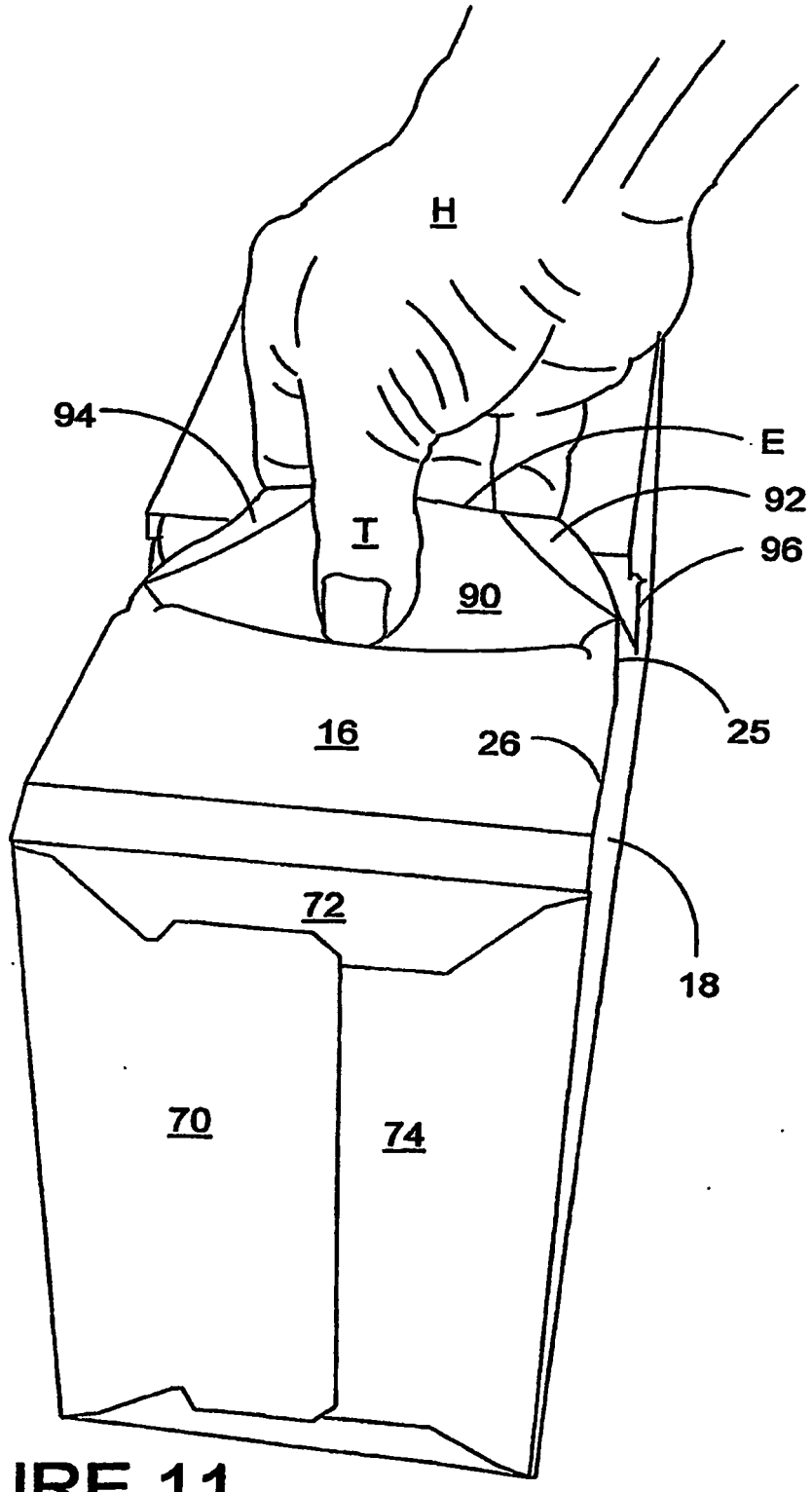

FIGURE 11

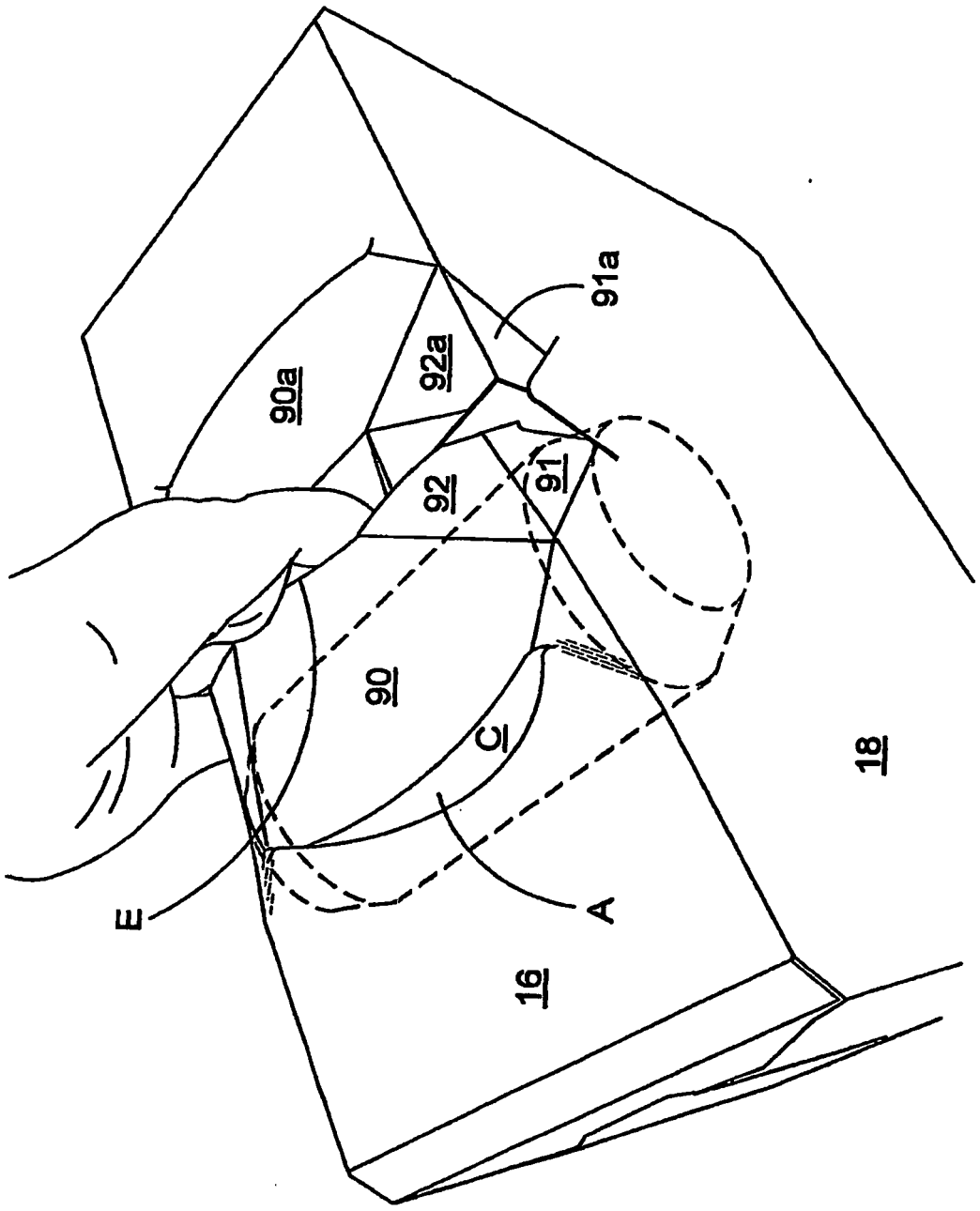

FIGURE 12

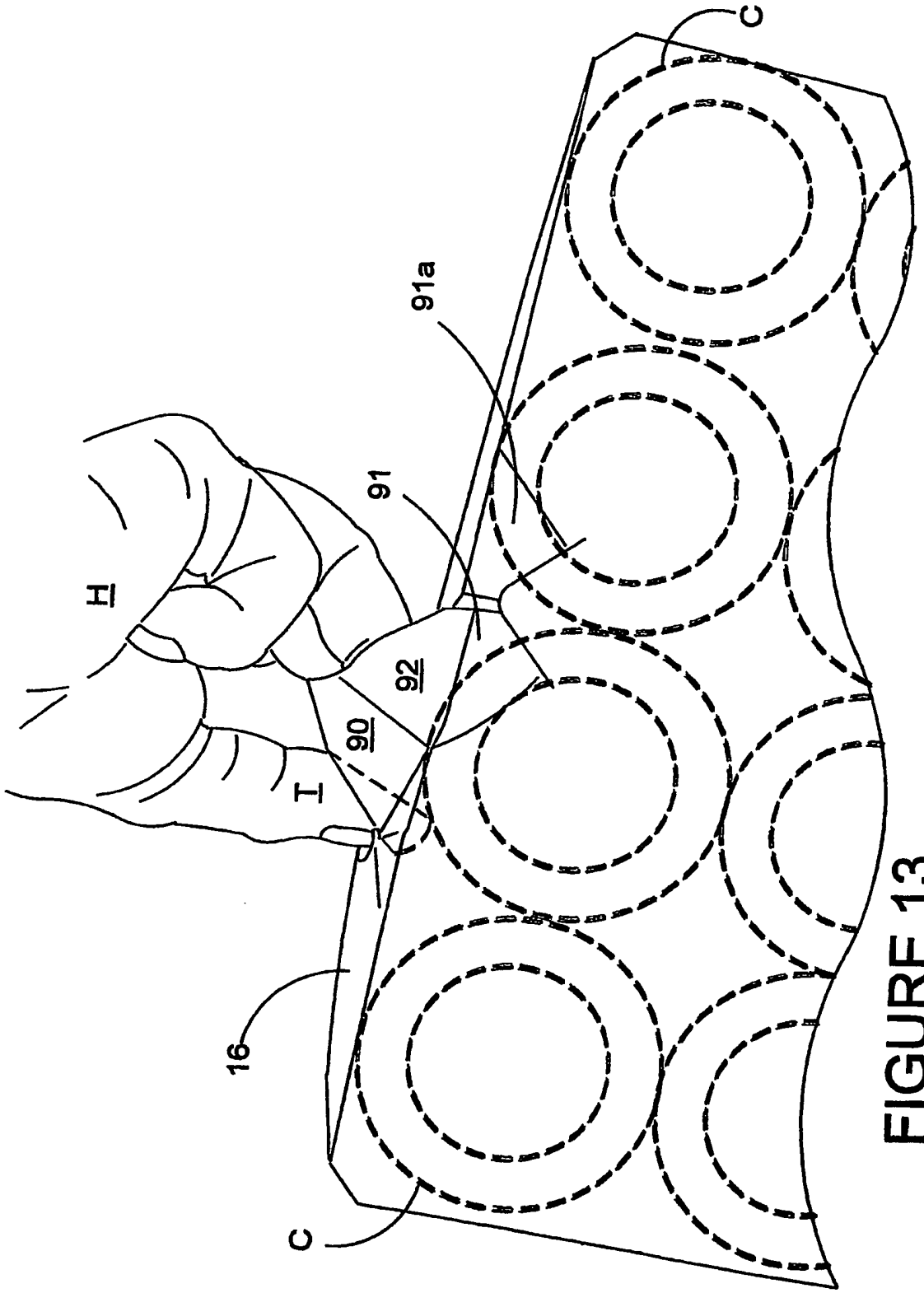

FIGURE 13

REFERENCES CITED IN THE DESCRIPTION

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

Patent documents cited in the description

- US 4706876 A **[0005]**
- EP 0179571 A **[0006]**
- US 4811894 A **[0006]**
- US 2598051 A **[0007]**
- EP 0391623 A **[0008]**
- US 4966324 A **[0008]**
- US 4785991 A **[0008]**
- US 2004074954 A **[0008]**