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(54) Carton and carton blank

Kartonbehälter und Zuschnitt

Carton et découpe de carton

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Description

[0001] The present invention relates to a carton and carton blank for forming the cartons. More particularly, the invention relates to a carton and blank for packaging fragile articles such as bottles of perfume or cream for example.

[0002] Such products are generally of high value and as such, breakages during transit or sale are costly and hence undesirable to the manufacturer and seller. One way of combating breakages is to provide a space around the article within the carton which may crumple upon impact, thereby dissipating energy such that the article contained within remains intact. Furthermore, the purchases of such products generally expect that the packaging should be commensurate with the quality and value of the article, and that the article be attractively presented within the packaging.

[0003] One solution is to provide a two part package comprising an inner carton and an outer carton, see for example US 2 692 077 (Kuhlman) or US 4 114 796. However, in such cartons, the base, sides and tops of the article can be prone to damage when moved or stored.

[0004] Another example is shown in US 2 835 428 to Herzog which discloses an inner and outer carton arrangement, the inner carton being arranged to be spaced from the walls of the outer carton and having a separate lid section that engages within slots provided in the upper edges of the inner carton. Herzog however, fails to provide means for retaining articles within the inner carton and the risk of the articles breaking upon impact with a wall of the inner carton exists. In addition, a complex arrangement of spacers is required to maintain the inner carton in a central position in relation to the outer carton; which inevitably adds to the cost and complexity of manufacturing the carton.

[0005] US 4,134,497 and GB 2,247,226 form the basis of the pre-characterising portion of claims 1 and 18 respectively.

[0006] The present invention and its preferred embodiments seek to overcome or at least mitigate the problems of the prior art.

[0007] One aspect of the invention provides a package for holding a fragile article comprising a tubular outer carton (C) and a receptacle comprising an article retention structure having an article retention panel, an article receiving aperture struck from the article retention panel, a support panel for supporting the bottom of the article interconnected to the retention panel by at least one of opposed side panels for retaining the retention and support panels in a spaced apart relationship wherein spacer means is provided to position the article retention structure intermediate the top and base walls of the outer carton, characterised in that the spacer means comprises lower spacer means having at least one lower spacer panel to retain the article retention structure spaced from the base wall, said lower spacer means being hingedly connected to the support panel.

[0008] One advantage of this aspect of the invention is that there is provided an article carrier in which the article is held within an outer carton securely with cushion members to minimise unwanted movement of the article.

[0009] According to another optional feature of the first aspect of the invention, the support wall is formed from a single panel.

[0010] According to another optional feature of the first aspect of the invention the spacer means may further comprise upper spacer means comprising at least one upper spacer panel to retain the article retention structure spaced from the carton top wall. Preferably, the or each upper spacer panels may be disposed along the perimeter of the retention panels for surrounding the article in the receiving aperture. More preferably, there may further comprise top protection means hinged to the upper spacer means to protect the top of an article in the receiving aperture.

[0011] According to yet another optional feature of the first aspect of the invention the lower spacer means may be struck from the support panel and wherein one of the side panels is hinged at one end to the article retention panel and provided at the other end with an engaging tab for insertion into the opening defined by the support panel by the lower spacer means. Alternatively, the one or more of the side panels may be hinged at one end to the support panel and secured at the other end to the upper spacer means. Optionally, the side panels may be hinged to the support panel and to the upper end of the upper spacer means. Preferably, the upper spacer means may comprise a pair of lateral protection flaps hinged to the opposite side edges of the retention panel and an end protection flap hinged to the lateral protection flap and engaged at its end tab with the other lateral protection flap.

[0012] According to another optional feature of this aspect of the invention, the other of the side panels is hinged to both the support panel and the top protection means.

[0013] According to a further optional feature of this aspect of the invention, the outer carton may have a spacer structure hinged thereto for engagement within the receptacle to retain it spaced apart from an end closure wall of the outer carton. Preferably the spacer structure may be formed from an end flap hingedly connected to an end of the outer carton that is closed by the end closure wall. More preferably the outer carton may be erected by folding the end flap to be locked in the folded position due to locking engagement with the receptacle. Even more preferably the locking engagement may be provided by a tab connected to the end flap, which tab is inserted into a slot in the receptacle.

[0014] According to a yet further optional feature of this aspect of the invention, the spacer structure may be tubular in shape and may have a tube axis extending generally perpendicular to the axis of the tubular outer

carton.

[0015] According to another optional feature of this aspect of the invention, the spacer structure may further comprise a keel panel adapted to abut the end closure wall.

[0016] A second aspect of the invention provides a receptacle for packaging fragile articles in an outer carton in a package which receptacle comprises an article retention structure having an article retention panel (52, 152, 252, 352), an article receiving aperture (94, 194, 294, 394) struck from said article retention panel (52, 152, 252, 352), a support panel (54, 154, 254, 354) for supporting the bottom of the article interconnected to the retention panel by at least one of opposed side panels (56, 174, 274, 374) for retaining the retention and support panels in a spaced-apart relationship wherein spacer means is provided to position the article retention structure intermediate the top and base walls of the outer carton (C), characterised in that the spacer means comprises lower spacer means having at least one lower spacer panel (70, 72; 156, 256; 252) to retain the article retention structure spaced from the base wall, said lower spacer means is hingedly connected to the support panel (54,154,254,354).

[0017] A third aspect of the invention provides a blank for forming a receptacle for packaging fragile articles in an outer carton comprising an article retention panel having an article receiving aperture, a support panel for supporting the bottom of the article and side panels hingedly connected to the retention and/or support panels wherein there further comprises spacer means hingedly connected to the article retention panel and the support panel is provided to position the article retention panel and support panel intermediate the top and base wall panels of the outer carton in a set up condition, characterised in that the spacer means comprises lower spacer means comprising at least one lower spacer panel to retain the article retention structure spaced from the base wall wherein said lower spacer means is hingedly connected to the support panel.

[0018] According to another optional feature of the third aspect of the invention, the support wall is formed from a single panel.

[0019] According to another optional feature of the third aspect of the invention, the spacer means may further comprise upper spacer means comprising upper spacer panels disposed along the perimeter of the article retention panel to retain the retention panel spaced from the carton top wall when in a set-up condition. Optionally, the top protection means may be hinged to the upper spacer means to protect the top of an article in the receiving aperture. Preferably, the lower spacer means may be struck from the support panel and wherein one or more of the side panels intermediate spacer means may be hinged at one end to the retention panel and provided at the other end with an engaging tab.

[0020] According to another optional feature of the third aspect of the invention, the one or more of the side panels may be hinged at one end to the support panel. Preferably, the one or more of the side panels may be hinged to the support panel and to the article retention panel. More preferably, the upper spacer means may comprise a pair of lateral protection flaps hinged to the opposite side edges of the retention panel and an end protection flap hinged to the lateral protection flap.

[0021] According to a still further optional feature of this aspect of the invention, the other one of the side panels is hinged to both the support panel and the top protection means.

[0022] Exemplary embodiments of the present 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 outer carton according to a first embodiment of the invention;

FIGURE 2 is a plan view of a blank for forming an article cushion member or receptacle according to a first embodiment of the invention;

FIGURES 3A to 3D illustrate the construction of the article cushion member from the blank shown in Figure 2;

FIGURE 4 is a perspective view of the article cushion members and carton in an erected and set up condition ready to receive an article;

FIGURE 5 is a cross-sectional view through B-B of the cushion member and outer carton shown in Figure 4 in a set up and loaded condition;

FIGURE 6 is a plan view of a blank for forming an article cushion member or receptacle according to a second embodiment of the invention;

FIGURES 7A to 7E illustrate the formation of the article cushion member according to the second embodiment of the invention;

FIGURE 8 shows the article carrier in a set up condition illustrating the outer carton and cushion member;

FIGURE 9 is a cross-sectional view through B' - B' of the article carrier shown in Figure 8 in a set up and loaded condition;

FIGURE 10 is a plan view of a blank for forming an article cushion member according to a third embodiment of the invention;

FIGURES 11A to 11E illustrate the formation of the article cushion member according to the third embodiment of the invention;

FIGURE 12 is a plan view of a blank for forming an outer carton according to a fourth embodiment of the invention;

FIGURE 13 is a plan view of a blank for forming an article cushion member according to a fourth embodiment of the invention;

FIGURES 14A to 14E illustrate the construction of the article cushion member from the blank shown in Figure 13;

FIGURES 15 and 16 illustrate the formation of the spacer structure of the outer carton from the blank shown in Figure 12;

FIGURE 17 is a perspective view of the article cushion member and carton of the fourth embodiment in an erected and set up condition ready to receive an article; and

FIGURE 18 is a cross-sectional view through "B-B" of the cushion member and outer carton shown in Figure 17 in a set up and loaded condition;

[0023] Referring to the drawings and in particular Figure 1 there is shown a blank 10 for forming an outer carton according to one embodiment of the invention. The blank is made from paperboard or other like foldable sheet material. It is envisaged that the outer carton could be changed both in shape or size without departing from the scope of the invention.

[0024] In Figure 1, the outer carton C is formed from opposed side and end panels 12 and 16; 14 and 18 hingedly connected together in series along fold lines 20, 22 and 24. There further comprises base panel 26 and top panel 28 hingedly connected to opposing end panels 14 and 18 respectively along fold lines 32 and 30. Preferably, there also comprises end support flaps 34 hingedly connected to side panels 16 and 12 along fold lines 36 used to provide additional support for the outer carton.

[0025] In order to secure the opposite ends of the carton blanks together, a glue flap 38 is hingedly connected to side panel 12 along fold line 40. Both top and base panels 26 and 28 may further comprise a securing flap 42 hingedly connected along fold line 44. In use, securing flap 42 is placed within the outer carton to abut the inner face of the opposing end wall.

[0026] Turning to Figure 2, there is shown one example of a blank 50 for forming a cushion member or receptacle made from paperboard or other like foldable sheet material. The cushion member is adapted to be placed in an outer carton of the type illustrated in Figure 1 or similar. The blank 50 comprises an article retention structure having an article retention panel 52, an article receiving aperture 94 struck from the article retention panel 52, a support panel 54 for supporting the bottom of the article A and side panels 56, 58 for retaining the retention and support panels in a spaced apart relationship wherein spacer means is provided to position the article retention structure intermediate the top and base walls 26, 28 of the outer carton 98.

[0027] It will be seen that from Figure 2 that in this embodiment the article retention panel 52 is hingedly connected to first side panel 56 along fold line 60. Support panel 54 is hingedly connected to first side panel 56 preferably along the opposing lateral edge by fold line 62. There further comprises a second side panel 58 hingedly connected to support panel 54 along fold line 64. Preferably, fold lines 62 and 64 are interrupted by cut lines 66 and 66a which extend into support panel 54 to define the free edges of lower spacer means. More particularly, there comprises in this embodiment two lower spacer panels 70, 72 that are shaped to be engaged with the bottom wall 26 of the outer carton described in more detail below.

[0028] There may further comprise an engaging tab 82 extending from support panel 52 and hingedly connected thereto along fold line 84. It will be seen that tab 82 extends outwardly from the end edge of support panel 52. and includes a protruding portion 83 extending beyond the tab. The protruding portion 83 is shaped to be engaged by the opening 95 defined in the support panel 54 by the first side.

[0029] In one class of embodiments there further comprises upper spacer means comprising first and second upper spacer panels 74, 78, which in this embodiment are hingedly connected to article retention panel 52 along longitudinal edges of article retention panel 52 by fold line 76 and 80 respectively.

[0030] The upper spacer means may further comprise a third upper spacer panel 86 which is hingedly connected to second upper spacer panel 78 along fold line 88. In Figure 2, third upper spacer panel 86 is adjacent support panel 54 and first side wall 56 separated there from by cut lines 85 and 87 respectively. Further upper spacer means may be provided by side panel 58 which in this embodiment is longer than the corresponding opposing side panel 56 so as to function as an upper spacer means, described below.

[0031] Preferably, top protection means is provided which is hinged to the upper spacer means to protect the top of an article in the receiving structure. It will be seen that top protection panel 90 is hingedly connected to side wall 58 along fold line 92.

[0032] The first embodiment shown in Figures 1 and 2 is a two part blank although it is envisaged that the blank could be constructed from a single blank whereby the upper or lower spacer means could be connected to one of the panels of the outer carton.

[0033] Turning now to a construction of the receptacle, which is illustrated in Figures 3A to 3D, the blank requires a series of sequential folding and, optionally, gluing operations which are preferably performed in a straight line machine so that the carton is not required

to be rotated or inverted to complete its construction. The folding process is not limited to that described below and can be altered according to particular manufacturing requirements.

[0034] In order to construct the receptacle it can be seen from Figure 3A that the lower spacer means is first formed by folding side panels 56 and 58 along fold lines 62 and 64 respectively whereby they are folded inwardly in directions X and Z. This folding action causes lower spacer panels 70 and 72 to be folded out of alignment with adjacent support panel 54 in a downward and outward direction. By folding side panel 56 along fold line 62, the article retention panel 52 and upper spacer means is folded out of the alignment with respect to article support panel 54. Thereafter engaging tab 82 is folded along fold line 84 into a substantially perpendicular relationship with article retention panel 52 in direction Y. Thus, the receptacle is at the first stage of a construction as shown in Figure 3B.

[0035] The construction of article retention structure 98 is completed by folding article retention panel 52 out of alignment with respect to the side panel 56 to be placed in opposed parallel arrangement with support panel 54. In order to secure the article retention structure in a set-up condition, the protruding part 83 of retention tab 82 is engaged with the opening 57 shown in Figure 3B. The article retention structure and lower spacer means is then in a set-up condition as shown in Figure 3C.

[0036] The next step is for the upper spacer means to be constructed whereby upper spacer panels 74 and 78 are folded inwardly in direction Y along fold lines 76 and 80 respectively to form the upper spacer means for those embodiments with third and fourth spacer panels 86, the third spacer panel 86 is folded along fold line 88 in direction W to complete the upper spacer means. It can be seen from Figure 3D that in this embodiment the fourth spacer panel is provided by an extension of side panel 58 which extends upwardly beyond the article retention structure 98 so that the upper edge of side panel 58 is aligned with the upper edges of the upper spacer means.

[0037] In order to complete construction of the package, the outer carton 99 is constructed whereby side and end panels 12, 14, 16, 18 are folded along fold lines 20, 22 and 24 to form a tubular structure and glue flap 38 is secured to end panel 18 as is well known. Thereafter the support flaps 34 are folded inwardly into the tubular structure and base wall panel 26 is folded along fold line 32 into a substantially perpendicular relationship with side wall 14 and is secured in position by tucking securing flap 42 within the tubular structure to be engaged to the inner face of end wall 18 and lower support flaps 34. Of course in other embodiments the base is constructed after the receptacle has been inserted in the outer carton.

[0038] The receptacle is inserted into the outer carton from above or below, as shown in Figure 4 and is ready to receive an article. Article A is then loaded by relative vertical movement between the carton and article to be supported on support panel 54. The sides of article A are supported by abutment with the edge 96 of article retention aperture 94. Top protection panel 90 is folded along fold line 92 to protect the top of the article. Upper support flaps 34 and top wall panel 28 of outer carton are folded inwardly towards the tubular structure. Top wall 28 is secured by tucking the securing flap 42 between the side wall 14 of the carton and the side panel 58 of receptacle.

[0039] The carton is in a fully set up and loaded condition shown in Figure 5 in cross-section. The lower spacer means is in engagement with the bottom wall of the outer carton to retain the article retention structure and space from the bottom wall and, in those embodiments with upper spacer means, the upper spacer panels 74, 76, 86, 58 engage the top wall of the outer carton to retain the article retention structure in spaced relationship from the top wall.

[0040] Turning to the second embodiment of receptacle or cushion member shown in Figure 6, there is shown a blank 150 for forming a cushion member or receptacle made from paperboard or other like foldable sheet material. The receptacle is adapted to be placed in an outer carton of the type illustrated in Figure 1. The blank 150 comprises an article retention structure having an article retention panel 152, an article receiving aperture 194 struck from the article retention panel 152, a support panel 154 for supporting the bottom of the article A and side panels 170, 172 for retaining the retention and support panels in a spaced apart relationship wherein spacer means is provided to position the article retention structure intermediate the top and base walls 26, 28 of the outer carton 98.

[0041] It will be seen that from Figure 6 that in this embodiment the article retention panel 152 is indirectly connected to first side wall panel 170, 172. Support panel 154 is hingedly connected to first and second side wall panels 170, 172 preferably along the opposing lateral edges by fold lines 169 and 161 respectively.

[0042] Lower spacer means are preferably provided by a pair of lower spacer panels 156 and 158. In this embodiment lower spacer panels 156, 158 are hingedly connected to support panel 154 along opposing longitudinal fold lines 162, 164.

[0043] There may further comprise upper spacer means which in this embodiment comprises first and second upper spacer panels 174, 178 hingedly connected to article retention panel 152 along the lateral edges by fold lines 176 and 180 respectively. The first upper spacer panel 174 is hingedly connected to side panel 172 along fold line 173.

[0044] The upper spacer means may further comprise third and fourth upper spacer panels 182, 186 which are hingedly connected to article retention panel 152 along fold lines 184 and 188 respectively.

[0045] Preferably top protection means is provided

which is hinged to upper spacer means to protect the top of an article held in the article retention structure. It will be seen that top protection panel 190 is hingedly connected to upper spacer panel 178 along fold line 192.

[0046] The third embodiment illustrated in Figure 10 is substantially the same as the second embodiment illustrated in Figure 6 and therefore like parts are designated by the same reference numeral with the prefix '2'. Therefore, only those differences shall be described in any greater detail.

[0047] The relative positions of the article retention panel 252 and support panel 254 have been moved in the blank so as to provide a more economical blank. Lower spacer means are again preferably provided by lower spacer panels 256, 258 hingedly connected to support panel 254 along fold lines 262 and 264 respectively. Article retention panel 252 is connected to support panel 254 by side panel 274 and second side panel 278 is hingedly connected to article retention panel 252 along the opposing lateral edge by fold line 280.

[0048] Upper spacer means is provided by panels 282 and 286. In some embodiments side panel 279 is hingedly connected to support panel 254 is sized to extend above the article retention structure to provide additional upper spacer means similar to upper spacer means described in the first embodiment.

[0049] Although the second and third embodiments shown in figures 6 and 11 are adapted to be formed from a two part blank, it is envisaged that the outer carton and receptacle could be constructed from a single blank without departing from the scope of invention.

[0050] In particular, it is envisaged that the article retention panel and associated upper spacer panels may be hingedly connected to an upper edge of one of the end or side panels of the outer carton, and that the support panel and associated lower spacer panels are hingedly interconnected to a lower edge of one of the end or side panels of the outer carton, and that tabs may be struck from the upper or lower spacer panels and be arranged to maintain spacing between the article retention panel and support panel.

[0051] Again the construction of the second and third embodiments requires a series of sequential folding and, optionally gluing operations which are performed on a straight line machine. The following process is not limited to that described below.

[0052] In order to construct the receptacle of the second embodiment reference is made to Figures 7A to 7E. The article retention panel 152, upper spacer means and top protection means are folded along fold line 173 into face contacting relationship with side panels 170, 172 and support panel 154. Preferably upper spacer panel 174, is secured to side panel 172 by glue or other suitable means known in the art. Thereafter upper spacer panel 178 and top protection panel 190 are folded about fold line 180 in direction V so as to place these panels in overlapping relationship with article retention panel 152 as shown in Figure 7B. Thereafter, side panel 170 is fold along fold line 169 in direction Z' to be placed in face contacting relationship with side panel 178 to be secured thereto by glue or other means known in the art. The receptacle is in a flat collapsed condition ready to be supplied to an end user of the carton.

[0053] In order to set up the receptacle the top protection panel 190 and side wall 170 are moved in an upward direction away from the article retention panel 152. This action causes the article retention structure to be automatically deployed whereby opposing side panel 172 is moved from a flat collapsed condition to a substantially parallel arrangement with side panel 170. Support panel 154 and article retention panel 152 are folded along fold lines 176, 180, 161, 169 to complete the erection of the retention structure shown in Figure 7D.

[0054] To complete construction of the receptacle , the lower retention panels 156 and 158 are folded out of alignment with support panel 154 along fold lines 164 and 162 respectively and the first and second upper spacer panels 182 and 186 are folded along fold lines 184 and 188 into the position shown in Figure 7E.

[0055] The receptacle is then inserted into an outer carton of the type illustrated in Figures 1 and 8. The article A is inserted into the receptacle by relative vertical movement and like the first embodiment is supported on the support panel 154 with the sides of the article supported by abutment with the edge of aperture 194. Thereafter the top protection panel 190 is folded over the article and the top wall 28 of the outer carton secured to the carton as described above. As with the first embodiment, the second embodiment shown in cross section in Figure 9 the lower spacer means is in engagement with the bottom wall of the outer carton to retain the article retention structure and space from the bottom wall and, in those embodiments with upper spacer means, the upper spacer panels engage the top wall of the outer carton to retain the article retention structure in spacer relationship from the top wall.

[0056] The third embodiment is constructed in a like manner although one advantage of this embodiment is that the construction process is simplified because of the simplicity of the carton. Thus the article retention panel 252 and upper spacer panel 282, 286 are folded in direction X" about fold line 276 into face contacting arrangement with respective ones of support panel 254 and lower spacer panels 256 and 258 respectively, as shown in Figure 11B.

[0057] Thereafter glue is applied to the outer face of side panel 278 and side panel 279 is folded in direction Y" to be secured to side panel 278. The receptacle is then in a flat collapsed condition as shown in Figure 11C ready to be supplied to the user to be set up and loaded into the outer carton. The construction of the article retention structure is substantially the same as the second embodiment whereby folding the top protection panel 290 and side panel 279 results in the side panels 274 and 279 being automatically erected so that the article

retention panel 252 and support panel 254 are separated. Thereafter the upper and lower spacer means are constructed to produce a receptacle as shown in Figure 11E.

[0058] The package is completed by placing the receptacle in the outer carton and loaded with an article in a like manner to the second embodiment and is not therefore described further.

[0059] The fourth embodiment illustrated in Figures 12 to 18 is largely the same as the second embodiment and therefore like parts are designated by the same reference numeral with the prefix "3". Therefore, only the differences shall be described in greater detail.

[0060] In this embodiment, the outer blank 10 may further comprise a spacer structure 315 formed from one or more panels of the blank. In addition, top and base panels 328 and 326 are rearranged to be hingedly connected to side panels 312 and 316 respectively, thus meaning that support flaps are preferably hingedly connected to end panels 314 and 318. The spacer structure 335 is, in this embodiment, provided by a first spacer panel 445 hingedly connected to side panel 314 along fold line 346. Preferably, there further comprises a keel panel 347 intermediate spacer panel 345 and side panel 314 and hingedly connected to spacer panel 345 along fold line 348. There further comprises a tab 349 hingedly connected to spacer panel 345 which, in this embodiment, is positioned along the end edge of the spacer panel 345. A second support structure may be provided which is hingedly connected to side panel 318 which in this embodiment comprises identical panels and therefore incorporate the same reference numerals with the addition of the letter "a".

[0061] Turning now to Figure 13, there is shown a second blank 350 for forming a cushion member or receptacle similar to the cushion member shown in Figure 6 of the second embodiment. However, the blank 350 further comprises securing means for securing the article retention member to the support structure. In this embodiment, the securing means comprises a tab 397, struck from article support panel 354 by cut line 398 which tab is adapted to flex, so as to receive the tab 349. A second securing means is provided for the second spacer structure and comprises identical features and is therefore designated by the same reference numerals with the addition of letter "a".

[0062] Although the embodiment shown in Figure 13 is adapted to be formed from a two part blank, it is envisaged that the outer carton and receptacle could be constructed from a single blank without departing from the scope of invention.

[0063] Turning now to a construction of the receptacle, which is illustrated in Figures 14A to 14E, the blank requires a series of sequential folding and, optionally, gluing operations which are preferably performed in a straight line machine so that the carton is not required to be rotated or inverted to complete its construction. The folding process is not limited to that described below and can be altered according to particular manufacturing requirements.

[0064] In this embodiment, the receptacle is constructed in a manner substantially identical to that of the second embodiment.

[0065] The receptacle is then inserted into an outer carton of the type illustrated in Figures 12 and 15 to 18 and the support structure(s) 335, 335a is formed. It will be seen from Figure 15 that the support panels 345, 345a and keel panels 347, 347a are folded inwardly about fold lines 346, 346a by the securing means, whereby tabs 397 are engaged with tabs 349, 349a. Keel panels 347 and 347a are preferably positioned to abut base panel 326, as shown in Figure 5, thereby to improve the support characteristics of the outer carton.

[0066] The article A is then loaded into the receptacle by relative vertical movement and is supported on the support panel 354 with the sides of the article supported by abutment with the edge 396 of article retention aperture 394. Thereafter the top protection panel 390 is folded over the article to protect the top of the article. Upper support flaps 334 and top wall panel 328 of outer carton are folded inwardly towards the tubular structure. Top wall 328 is secured by tucking the securing flap 342 between the side wall 314 of the carton and the side panel 358 of receptacle.

[0067] The carton is in a fully set up and loaded condition shown in Figure 18 in cross-section. The lower spacer means 356, 358 is in engagement with the bottom wall of the outer carton and the support structures 335, 335a assist in supporting the article retention structure and spacer from the bottom wall and, in those embodiments with upper spacer means, the upper spacer panels 374, 378, 386, 358 engage the top wall of the outer carton to retain the article retention structure in spaced relationship from the top wall.

[0068] The base strengthens the overall carton structure and assists in maintaining a tubular structure when for example the carton is stored on a supermarket shelf. The platform provides further support for the article contained within it.

[0069] Furthermore, in some embodiments the choice of foldable sheet material for the support structure can be selected so that it will tend to crumple in the event of excessive or sudden movement of the article within the carton for example during transit, thereby to dissipate the forces, and reduce the risk the article will be damaged.

[0070] It will be recognised that as used herein, directional references such as "top", "base", "end", and "side", "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 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 one of the following, a score line, a frangible line or a fold line, without departing from the scope of

invention.

[0071] The present invention and it preferred embodiments relate to a carton and/or cushion member which is shaped to provide satisfactory rigidity to hold fragile items such as bottles securely but with a degree of flexibility. The shape of the blank minimises the amount of paperboard required for the carton. The carton can be constructed from a flat collapsed condition to a position of use by hand or automatic machinery. Furthermore, the article retention structure can be configured to act as a strut without departing from the scope of invention.

Claims

1. A package for holding a fragile article comprising a tubular outer carton (C) and a receptacle comprising an article retention structure having an article retention panel (52, 152, 252, 352), an article receiving aperture (94, 194, 294, 394) struck from the article retention panel, a support panel (54, 154, 254, 354) for supporting the bottom of the article interconnected to the retention panel by at least one of opposed side panels (56, 174, 274, 374) for retaining the retention and support panels in a spaced apart relationship wherein spacer means is provided to position the article retention structure intermediate the top and base walls of the outer carton, **characterised in that** the spacer means comprises lower spacer means having at least one lower spacer panel (70, 72; 156, 256; 252) to retain the article retention structure spaced from the base wall, said lower spacer means being hingedly connected to the support panel (54, 154,254, 354).

2. A package as claimed in claim 1 wherein the support panel is formed from a single panel.

3. A package as claimed in claim 1 or claim 2 further comprising top protection means (90; 190; 290; 390) hinged to an upper spacer means (58; 178; 378) or to a side wall panel (58; 279) to protect the top of an article in the receiving aperture.

4. A package as claimed in claim 3 wherein the upper spacer means comprises at least three upper spacer panels (58, 74, 76, 86, 174, 178, 182, 186) for retaining the article retention structure spaced from the top wall of the outer carton.

5. A package as claimed in claim 4 wherein said at least three upper spacer panels (58, 74, 76, 86, 174, 178, 182, 186) are disposed along the perimeter of the article retention panel (52; 152) for surrounding the article in the receiving aperture

6. A package as claimed in claim 4, wherein the lower spacer panel (72; 156) and the upper spacer panel (86; 182) are generally coplanar.

7. A package as claimed in any of claims 3 to 6 wherein the lower spacer means is struck from the support panel (54) and wherein one of the side panels (56) is hinged to one end of the article retention panel (52) which is provided at the other end with an engaging tab (82) for insertion into the opening defined in the support panel (54) by the lower spacer means.

8. A package as claimed in claims 5 to 7 wherein the one or more of the side panels (56) is hinged at one end thereof to the support panel (54) and secured at the other end thereof to the upper spacer means.

9. A package as claimed in any one of claims 5 to 7 wherein one or more of the side panels (56) are hinged to the support panel (54) and to the article retention panel (52).

10. A package as claimed in any one of claims 4 to 9 wherein the upper spacer means comprises a pair of lateral protection flaps (74, 78) hinged to the opposite side edges of the retention panel (52) and an end protection flap (86) hinged to one of the lateral protection flaps and engaged at its end tab with the other lateral protection flap.

11. A package as claimed in any of claims 3 to 10 wherein the other of the side panels (58, 279) is hinged to both the support panel (54, 254) and the top protection means (90, 290).

12. A package as claimed in any preceding claim wherein the outer carton has a spacer structure hinged thereto for engagement within the receptacle to retain it spaced apart from an end closure wall of the outer carton.

13. A package as claimed in claim 12, wherein the spacer structure is formed from an end flap(335) hingedly connected to an end of the outer carton that is closed by the end closure wall (326).

14. A package as claimed in claim 13 wherein the outer carton is erected by folding the end flap (335) to be locked in the folded position due to locking engagement with the receptacle.

15. A package as claimed in claim 14 wherein the locking engagement is provided by a tab (349) connected to the end flap (345), which tab is inserted into a slot (397) in the receptacle.

16. A package as claimed in any one of claims 13 to 15 wherein the spacer structure is tubular in shape and has a tube axis extending generally perpendicular

to the axis of the tubular outer carton.

17. A package as claimed in any of claims 12 to 16 wherein the spacer structure further comprises a keel panel (347) adapted to abut the end closure wall (326).

18. A receptacle for packaging fragile articles in an outer carton in a package which receptacle comprises an article retention structure having an article retention panel (52, 152, 252, 352), an article receiving aperture (94, 194, 294, 394) struck from said article retention panel (52, 152, 252, 352), a support panel (54, 154, 254, 354) for supporting the bottom of the article interconnected to the retention panel by at least one of opposed side panels (56, 172, 274, 372) for retaining the retention and support panels in a spaced-apart relationship wherein spacer means is provided to position the article retention structure intermediate the top and base walls of the outer carton (C), **characterised in that** the spacer means comprises lower spacer means having at least one lower spacer panel (70, 72; 156, 256; 252) to retain the article retention structure spaced from the base wall, said lower spacer means is hingedly connected to the support panel (54, 154, 254, 354).

19. A blank for forming a receptacle for packaging fragile articles in an outer carton comprising an article retention panel (52, 152, 252, 352) having an article receiving aperture (94, 194, 294, 394), a support panel (54, 154, 254, 354) for supporting the bottom of the article and side panels (56, 172, 274, 372) hingedly connected to the retention and/or support panels wherein there further comprises spacer means hingedly connected to the article retention panel and the support panel is provided to position the article retention panel and support panel intermediate the top and base wall panels of the outer carton in a set up condition, **characterised in that** the spacer means comprises lower spacer means comprising at least one lower spacer panel (70, 72; 156; 158; 256; 258; 356; 358) to retain the article retention structure spaced from the base wall wherein said lower spacer means is hingedly connected to the support panel (54, 154, 254, 354).

20. A blank as claimed in claim 19 wherein the support wall panel is formed from a single panel.

21. A blank as claimed in claim 19 or claim 20 further comprising top protection means (90; 190; 290) hinged to an upper spacer means (58; 178) or to a side panel (178, 279) of the receptacle to protect the top of an article in the receiving aperture.

22. A blank as claimed in claim 21 wherein the upper spacer means comprises at least three upper spacer panels (74, 76, 86; 174, 178, 182, 186) disposed along the perimeter of the article retention panel to retain the retention panel spaced from the top wall of the outer carton when in a set up condition.

23. A blank as claimed in any of claims 19 to 22 wherein the lower spacer means is struck from the support panel (54) and wherein one of the side panels (56) is hinged to one end of the retention panel which is provided at the other end with an engaging tab (82).

24. The blank as claimed in claims 19 to 23 wherein one or more of the side panels (56) are hinged at one end thereof to the support panel (54).

25. The blank as claimed in claim 24 wherein the one or more of the side panels (56) is hinged to the support panel (54) and to the article retention panel (52).

26. The blank as claimed in claim 25 wherein the upper spacer means comprises a pair of lateral protection flaps (74, 78) hinged to the opposite side edges of the retention panel and an end protection flap (86) hinged to one of the lateral protection flaps.

27. The blank as claimed in claim 25 or claim 26 wherein the other one of the side panels (58; 279) is hinged to both the support panel (54; 254) and the top protection means (90; 290).

Patentansprüche

1. Verpackung zum Halten eines zerbrechlichen Gegenstands, umfassend eine röhrenförmige äußere Schachtel (C) und ein Behältnis, umfassend eine Gegenstandsrückhaltestruktur mit einer Gegenstandsrückhaltewandfläche (52, 152, 252, 352), einer Gegenstandsrückhahmeöffnung (94, 194, 294, 394), die aus der Gegenstandsrückhaltewandfläche ausgestanzt ist, einer Trägerwandfläche (54, 154, 254, 354), um den Boden des Gegenstands zu tragen, die durch wenigstens eine Seitenwandfläche der gegenüberliegenden Seitenwandflächen (56, 174, 274, 374) mit der Rückhaltewandfläche verbunden ist, um die Rückhaltewandfläche und die Trägerwandfläche in einer beabstandeten Beziehung zurückzuhalten, wobei Abstandsmittel bereitgestellt sind, um die Gegenstandsrückhaltestruktur zwischen der Deckenwand und der Bodenwand der äußeren Schachtel zu positionieren, **dadurch gekennzeichnet, dass** die Abstandsmittel untere Abstandsmittel mit wenigstens einer unteren Abstandswandfläche (70, 72; 156, 256; 252) aufweisen, um die Gegenstandsrückhaltestruktur beabstandet von der Bodenwand zu halten, wobei die unteren Abstandsmittel gelenkig mit der Träger-

wandfläche (54, 154, 254, 354) verbunden sind.

2. Verpackung nach Anspruch 1, wobei die Trägerwandfläche aus einer einzelnen Wandfläche ausgebildet ist.

3. Verpackung nach Anspruch 1 oder 2, wobei ferner Mittel zum Schutz des oberen Endes (90; 190; 290) umfasst werden, die gelenkig an oberen Abstandsmitteln (58; 178; 378) oder an einer Seitenwandfläche (58; 178) angebracht sind, um das obere Ende eines Gegenstands in der Aufnahmeöffnung zu schützen.

4. Verpackung nach Anspruch 3, wobei die oberen Abstandsmittel wenigstens drei obere Abstandswandflächen (74, 76, 86; 174, 178, 182, 186) umfassen, um die Gegenstandsrückhaltestruktur beabstandet von der Deckenwand der äußeren Schachtel zu halten.

5. Verpackung nach Anspruch 4, wobei die wenigstens drei oberen Abstandswandflächen (74, 76, 86; 174, 178, 182, 186) entlang des Umfangs der Gegenstandsrückhaltewandfläche (52; 152) angeordnet sind, um den Gegenstand in der Aufnahmeöffnung zu umgeben.

6. Verpackung nach Anspruch 4, wobei die untere Abstandswandfläche (72; 156) und die obere Abstandswandfläche (86; 182) im Wesentlichen in einer Ebene liegen.

7. Verpackung nach einem der Ansprüche 3 bis 6, wobei die unteren Abstandsmittel aus der Trägerwandfläche (54) ausgestanzt sind und wobei eine der Seitenwandflächen (56) gelenkig mit einem Ende der Gegenstandsrückhaltewandflächen (52) verbunden ist, die an dem anderen Ende mit einer Eingrifflasche (82) bereitgestellt ist, um diese in die Öffnung einzubringen, die durch die unteren Abstandsmittel in der Trägerwandfläche (54) definiert ist.

8. Verpackung nach einem der Ansprüche 5 bis 7, wobei die eine oder die mehreren Seitenwandflächen (56) an einem Ende davon gelenkig an die Trägerwandfläche (54) angebracht ist bzw. sind und an dem anderen Ende davon an die oberen Abstandsmittel befestigt ist bzw. sind.

9. Verpackung nach einem der Ansprüche 5 bis 7, wobei eine oder mehrere der Seitenwandflächen (56) gelenkig an die Trägerwandfläche (54) und die Gegenstandsrückhaltewandfläche (52) angebracht ist bzw. sind.

10. Verpackung nach einem der Ansprüche 4 bis 9, wobei die oberen Abstandsmittel ein Paar von lateralen Schutzklappen (74, 78) umfassen, die gelenkig an die gegenüberliegenden Seitenkanten der Rückhaltewandflächen (52) angebracht sind, sowie eine Endschutzklappe (86), die gelenkig an eine der lateralen Schutzklappen angebracht ist und an dessen Endlasche mit der anderen lateralen Schutzklappe in In-Eingriffnahme steht.

11. Verpackung nach einem der Ansprüche 3 bis 10, wobei die andere Seitenwandfläche der Seitenwandflächen (58, 279) sowohl an die Trägerwandfläche (54, 254) als auch an die Schutzmittel (90, 290) für das obere Ende angebracht ist.

12. Verpackung nach einem der vorhergehenden Ansprüche, wobei die äußere Schachtel eine Abstandsstruktur aufweist, die für eine In-Eingriffnahme innerhalb des Behältnisses an diese gelenkig angebracht ist, um dieses beabstandet von einer Endverschlusswand der äußeren Schachtel zu halten.

13. Verpackung nach Anspruch 12, wobei die Abstandsstruktur aus einer Endklappe (335) ausgebildet ist, die gelenkig mit einem Ende der äußeren Schachtel verbunden ist, das durch die Endverschlusswand (326) verschlossen ist.

14. Verpackung nach Anspruch 13, wobei die äußere Schachtel aufgerichtet wird, indem die Endklappe (335) gefaltet wird, um in der gefalteten Position aufgrund einer verriegelnden In-Eingriffnahme mit dem Behältnis verriegelt zu werden.

15. Verpackung nach Anspruch 14, wobei die verriegelnde In-Eingriffnahme durch eine Lasche (349) bereitgestellt wird, die mit der Endklappe (345) verbunden ist, wobei die Lasche in eine Aussparung (397) in dem Behältnis eingebracht ist.

16. Verpackung nach einem der Ansprüche 13 bis 15, wobei die Abstandsstruktur röhrenförmig ist und eine Röhrenachse aufweist, die sich im Wesentlichen senkrecht zu der Achse der röhrenförmigen äußeren Schachtel erstreckt.

17. Verpackung nach einem der Ansprüche 12 bis 16, wobei die Abstandsstruktur ferner eine Kielwandfläche (347) umfasst, die ausgestaltet ist, an die Endverschlusswand (326) anzustoßen.

18. Behältnis zum Verpacken zerbrechlicher Gegenstände in einer äußeren Schachtel in einer Verpakkung, wobei das Behältnis eine Gegenstandsrückhaltestruktur umfasst, die eine Gegenstandsrückhaltewandfläche (52, 152, 252, 352) umfasst, eine Gegenstandsaufnahmeöffnung (94, 194, 294, 394),

die aus der Gegenstandsrückhaltewandfläche (52, 152, 252, 352) ausgestanzt ist, eine Trägerwandfläche (54, 154, 254, 354), um den Boden des Gegenstands zu tragen, die durch wenigstens eine Seitenwandfläche von gegenüberliegenden Seitenwandflächen (56, 172, 274, 372) mit der Rückhaltewandfläche verbunden ist, um die Rückhaltewandfläche und die Trägerwandfläche in einer beabstandeten Beziehung zu halten, wobei Abstandsmittel bereitgestellt sind, um die Gegenstandsrückhaltestruktur zwischen der Deckenwand und der Bodenwand der äußeren Schachtel (C) anzuordnen, **dadurch gekennzeichnet, dass** die Abstandsmittel untere Abstandsmittel mit wenigstens einer unteren Abstandswandfläche (70, 72; 156, 256; 252) umfassen, um die Gegenstandsrückhaltestruktur beabstandet von der Bodenwand zu halten, wobei die unteren Abstandsmittel gelenkig mit der Trägerwandfläche (54, 154, 254, 354) verbunden sind.

19. Zuschnitt zum Ausbilden eines Behältnisses zum Verpacken zerbrechlicher Gegenstände in einer äußeren Schachtel, umfassend eine Gegenstandsrückhaltewandfläche (52, 152, 252, 352), die eine Gegenstandsaufriahmeöffnung (94, 194, 294, 394), eine Trägerwandfläche (54, 154, 254, 354), um den Boden des Gegenstands zu tragen, sowie Seitenwandflächen (56, 172, 274, 372) umfasst, die gelenkig mit der Rückhaltewandfläche und/oder der Trägerwandfläche verbunden sind, wobei ferner Abstandsmittel umfasst werden, die gelenkig mit der Gegenstandsrückhaltewandfläche verbunden sind, und wobei die Trägerwandfläche bereitgestellt ist, um die Gegenstandsrückhaltewandfläche und die Trägerwandfläche zwischen der Deckenwandfläche und der Bodenwandfläche der äußeren Schachtel in einem aufgerichteten Zustand anzuordnen, **dadurch gekennzeichnet, dass** die Abstandsmittel untere Abstandsmittel umfassen, die wenigstens eine untere Abstandswandfläche (70, 72; 156; 158; 256; 258; 356; 358) umfassen, um die Gegenstandsrückhaltestruktur beabstandet von der Bodenwand zu halten, wobei die unteren Abstandsmittel gelenkig mit der Trägerwandfläche (54, 154, 254, 354) verbunden sind.

20. Zuschnitt nach Anspruch 19, wobei die Trägerwandfläche aus einer einzelnen Wandfläche ausgebildet ist.

21. Zuschnitt nach Anspruch 19 oder 20, wobei ferner Mittel zum Schutz des oberen Endes (90; 190; 290) umfasst werden, die an obere Abstandsmittel (58; 178) oder an eine Seitenwandfläche (178, 279) des Behältnisses gelenkig angebracht sind, um das obere Ende eines Gegenstands in der Aufnahmeöffnung zu schützen.

22. Zuschnitt nach Anspruch 21, wobei die oberen Abstandsmittel wenigstens drei obere Abstandswandflächen (74, 76, 86; 174, 178, 182, 186) umfassen, die entlang des Umfangs der Gegenstandsrückhaltewandfläche angeordnet sind, um die Rückhaltewandfläche in einem aufgerichteten Zustand beabstandet von der Deckenwand der äußeren Schachtel zu halten.

23. Zuschnitt nach einem der Ansprüche 19 bis 22, wobei die unteren Abstandsmittel aus der Trägerwandfläche (54) ausgestanzt sind und wobei eine Seitenwandfläche der Seitenwandflächen (56) gelenkig an ein Ende der Rückhaltewandfläche angebracht ist, die an dem anderen Ende mit einer Eingrifflasche (82) bereitgestellt ist.

24. Zuschnitt nach einem der Ansprüche 19 bis 23, wobei eine oder mehrere der Seitenwandflächen (56) an einem Ende davon gelenkig an der Trägerwandfläche (54) angebracht ist bzw. sind.

25. Zuschnitt nach Anspruch 24, wobei die eine oder die mehreren Seitenwandflächen der Seitenwandflächen (56) gelenkig an die Trägerwandfläche (54) und die Gegenstandsrückhaltewandfläche (52) angebracht ist bzw. sind.

26. Zuschnitt nach Anspruch 25, wobei die oberen Abstandsmittel ein Paar von lateralen Schutzklappen (74, 78) umfassen, die gelenkig an die gegenüberliegenden Seitenkanten der Rückhaltewandfläche angebracht sind, sowie eine Endschutzklappe (86), die gelenkig an eine der lateralen Schutzklappen angebracht ist.

27. Zuschnitt nach Anspruch 25 oder 26, wobei die andere Seitenwandfläche der Seitenwandflächen (58; 279) sowohl an die Trägerwandfläche (54; 254) als auch an die Mittel zum Schutz des oberen Endes (90; 290) gelenkig angebracht ist.

Revendications

1. Emballage destiné à contenir un article fragile comprenant une boite en carton extérieure tubulaire (C) et un réceptacle comprenant une structure d'immobilisation de l'article ayant un panneau d'immobilisation de l'article (52, 152, 252, 352), une ouverture de réception de l'article (94, 194, 294, 394) qui s'amorce à partir du panneau d'immobilisation de l'article, un panneau de support (54, 154, 254, 354) permettant de supporter le fond de l'article raccordé au panneau d'immobilisation par au moins l'un des panneaux latéraux opposés (56, 174, 274, 374) afin d'immobiliser les panneaux d'immobilisation et de support en une relation espacée, dans lequel le

moyen d'espacement est fourni pour positionner la structure d'immobilisation de l'article à mi-chemin des parois du dessus et du dessous de la boîte en carton extérieure, **caractérisé en ce que** le moyen d'espacement comprend un moyen d'espacement inférieur ayant au moins un panneau d'espacement inférieur (70, 72 ; 156, 256 ; 252) pour immobiliser la structure d'immobilisation de l'article loin de la paroi du dessous, ledit moyen d'espacement inférieur étant raccordé par une articulation au panneau de support (54, 154, 254, 354).

2. Emballage selon la revendication 1, dans lequel le panneau de support est composé d'un seul panneau.

3. Emballage selon la revendication 1 ou la revendication 2, comprenant en outre un moyen de protection de dessus (90 ; 190 ; 290) articulé sur un moyen d'espacement supérieur (58 ; 178 ; 378) ou sur un panneau de paroi latérale (58, 178) pour protéger le dessus d'un article dans l'ouverture de réception.

4. Emballage selon la revendication 3, dans lequel le moyen d'espacement supérieur comprend au moins trois panneaux d'espacement supérieurs (74, 76, 86 ; 174, 178, 182, 186) pour immobiliser la structure d'immobilisation de l'article espacée de la paroi de dessus de la boite en carton extérieure.

5. Emballage selon la revendication 4, dans lequel au moins trois panneaux d'espacement supérieurs (74, 76, 86 ; 174, 178, 182, 186) sont disposés le long du périmètre du panneau d'immobilisation de l'article (52 ; 152) afin d'entourer l'article dans l'ouverture de réception.

6. Emballage selon la revendication 4, dans lequel le panneau d'espacement ; inférieur (72 ; 156) et le panneau d'espacement supérieur (86 ; 182) sont généralement situés dans le même plan.

7. Emballage selon l'une quelconque des revendications 3 à 6, dans lequel le moyen d'espacement inférieur s'amorce à partir du panneau de support (54) et dans lequel l'un des côtés latéraux (56) est articulé au niveau d'une extrémité du panneau d'immobilisation de l'article (52) qui est muni, au niveau de l'autre extrémité, d'une languette d'engagement (82) destinée à une insertion dans l'ouverture définie dans le panneau de support (54) par le moyen d'espacement inférieur.

8. Emballage selon les revendications 5 à 7, dans lequel le panneau latéral ou les panneaux latéraux (56) est (sont) articulé(s) au niveau d'une de ses (leurs) extrémités sur le panneau de support (54) et fixé(s), au niveau de son (leur) autre extrémité, sur le moyen d'espacement supérieur.

9. Emballage selon l'une quelconque des revendications 5 à 7, dans lequel un ou plusieurs des panneaux latéraux (56) est (sont) articulé(s) sur le panneau de support (54) et sur le panneau d'immobilisation de l'article (52).

10. Emballage selon l'une quelconque des revendications 4 à 9, dans lequel le moyen d'espacement supérieur comprend une paire de rabats de protection latéraux (74, 78) articulés sur les bords latéraux opposés du panneau d'immobilisation (52) et un rabat de protection d'extrémité (86) articulé sur l'un des rabats de protection latéraux et engagé au niveau de sa languette d'extrémité sur l'autre rabat de protection latéral.

11. Emballage selon l'une quelconque des revendications 3 à 10, dans lequel l'autre des panneaux latéraux (58, 279) est articulé sur les deux panneaux de support (54, 254) et le moyen de protection du dessus (90, 290).

12. Emballage selon l'une quelconque des revendications précédentes, dans lequel la boîte en carton extérieure possède une structure d'espacement articulée sur celui-ci permettant un engagement à l'intérieur du réceptacle pour l'immobiliser en étant espacé d'une paroi de fermeture d'extrémité de la boite en carton extérieure.

13. Emballage selon la revendication 12, dans lequel la structure d'espacement est formée à partir d'un rabat d'extrémité (335) raccordé par une articulation à une extrémité de la boîte en carton extérieure, qui est refermé par la paroi de fermeture d'extrémité (326).

14. Emballage selon la revendication 13, dans lequel la boite en carton extérieure est mise en forme en repliant le rabat d'extrémité (335) pour qu'il soit bloqué dans la position repliée, du fait de l'engagement de blocage avec le réceptacle.

15. Emballage selon la revendication 14, dans lequel l'engagement de blocage est fourni par une languette (349) raccordée au rabat d'extrémité (345), laquelle languette est insérée dans une fente (397) prévue dans le réceptacle.

16. Emballage selon l'une quelconque des revendications 13 à 15, dans lequel la structure d'espacement est de forme tubulaire et a un axe de tube qui s'étend, de manière générale, perpendiculairement à l'axe de la boîte en carton extérieure tubulaire.

17. Emballage selon l'une quelconque des revendications 12 à 16, dans lequel la structure d'espacement comprend en outre un panneau de calage (347) conçu pour buter contre la paroi de fermeture d'extrémité (326).

18. Réceptacle destiné à emballer des articles fragiles dans une boîte en carton extérieure dans un emballage, lequel réceptacle comprend une structure d'immobilisation de l'article ayant un panneau d'immobilisation de l'article (52, 152, 252, 352), une ouverture de réception de l'article (94, 194, 294, 394) qui s'amorce à partir du panneau d'immobilisation de l'article (52, 152, 252, 352), un panneau de support (54, 154, 254, 354) permettant de supporter le fond de l'article raccordé au panneau d'immobilisation par au moins l'un des panneaux latéraux opposés (56, 172, 274, 372) afin d'immobiliser les panneaux d'immobilisation et de support en une relation espacée, dans lequel le moyen d'espacement est fourni pour positionner la structure d'immobilisation de l'article à mi-chemin des parois du dessus et du dessous de la boîte en carton extérieure (C), **caractérisé en ce que** le moyen d'espacement comprend un moyen d'espacement inférieur ayant au moins un panneau d'espacement inférieur (70, 72 ; 156, 256 ; 252) pour immobiliser la structure d'immobilisation de l'article loin de la paroi du dessous, ledit moyen d'espacement inférieur étant raccordé par une articulation au panneau de support (54, 154, 254, 354).

19. Flan destiné à former un réceptacle destiné à emballer des articles fragiles dans une boîte en carton extérieure dans un emballage, comprenant un panneau d'immobilisation de l'article (52, 152, 252, 352), ayant une ouverture de réception de l'article (94, 194, 294, 394), un panneau de support (54, 154, 254, 354) permettant de supporter le fond de l'article et les panneaux latéraux opposés (56, 172, 274, 372) raccordé de façon articulée aux panneaux d'immobilisation et/ou de support, dans lequel celui-ci comprend en outre un moyen d'espacement raccordé par une articulation au panneau d'immobilisation de l'article et le panneau de support est fourni pour positionner le panneau d'immobilisation de l'article et le panneau de support à mi-chemin des panneaux des parois du dessus et du dessous de la boîte en carton extérieure, dans un état vertical, **caractérisé en ce que** le moyen d'espacement comprend un moyen d'espacement inférieur comprenant au moins un panneau d'espacement inférieur (70, 72 ; 156 ; 158 ; 256 ; 258 ; 356 ; 358) pour immobiliser la structure d'immobilisation de l'article loin de la paroi du dessous, ledit moyen d'espacement inférieur étant raccordé par une articulation au panneau de support (54, 154, 254, 354).

20. Flan selon la revendication 19, dans lequel le panneau de paroi de support est composé d'un seul panneau.

21. Flan selon la revendication 19 ou la revendication 20, comprenant en outre un moyen de protection du dessus (90 ; 190 ; 290) articulé sur un moyen d'espacement supérieur (58 ; 178) ou sur un panneau latéral (178, 279) du réceptacle, afin de protéger le dessus d'un article dans l'ouverture de réception.

22. Flan selon la revendication 21, dans lequel le moyen d'espacement supérieur comprend au moins trois panneaux d'espacement supérieurs (74, 76, 86 ; 174, 178, 182, 186) disposés le long du périmètre du panneau d'immobilisation de l'article afin d'immobiliser le panneau d'immobilisation espacé de la paroi de dessus de la boîte en carton extérieure lorsqu'elle est en état vertical.

23. Flan selon l'une quelconque des revendications 19 à 22, dans lequel le moyen d'espacement inférieur s'amorce à partir du panneau de support (54) et dans lequel l'un des panneaux latéraux (56) est articulé au niveau d'une extrémité du panneau d'immobilisation qui est muni, au niveau de l'autre extrémité, d'une languette d'engagement (82).

24. Flan selon les revendications 19 à 23, dans lequel le panneau latéral ou les panneaux latéraux (56) est (sont) articulé(s) au niveau d'une extrémité de celui-ci (ceux-ci) sur le panneau de support (54).

25. Flan selon la revendication 24, dans lequel le panneau latéral ou les panneaux latéraux (56) est (sont) articulé(s) sur le panneau de support (54) et sur le panneau d'immobilisation de l'article (52).

26. Flan selon la revendication 25, dans lequel le moyen d'espacement supérieur comprend une paire de rabats de protection latéraux (74, 78) articulés sur les bords latéraux opposés du panneau d'immobilisation et un rabat de protection d'extrémité (86) articulé sur les rabats de protection latéraux.

27. Flan selon la revendication 25 ou la revendication 26, dans lequel l'autre des panneaux latéraux (58 ; 279) est articulé à la fois sur le panneau de support (54 ; 254) et sur le moyen de protection de dessus (90 ; 290).

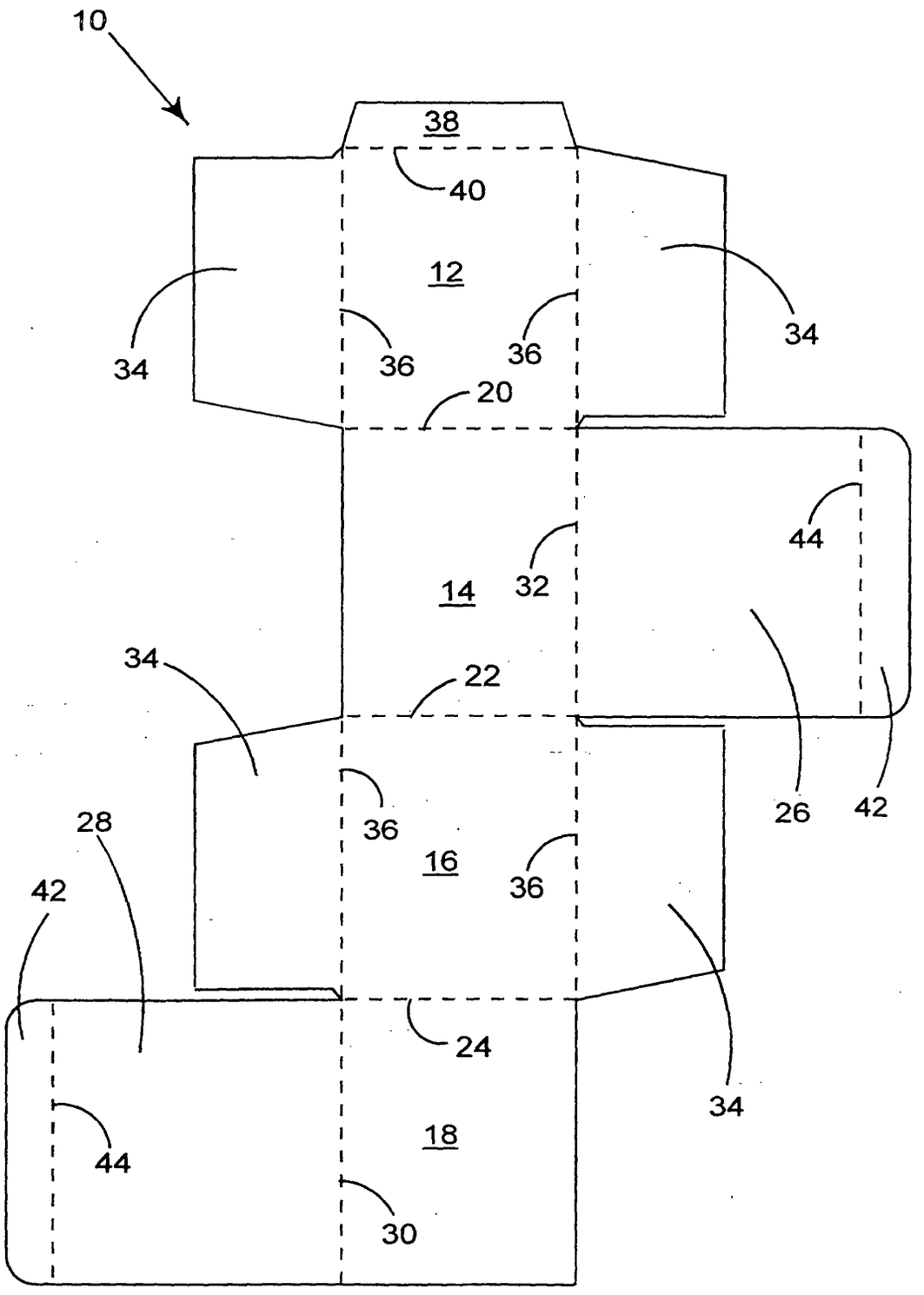
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FIGURE 1

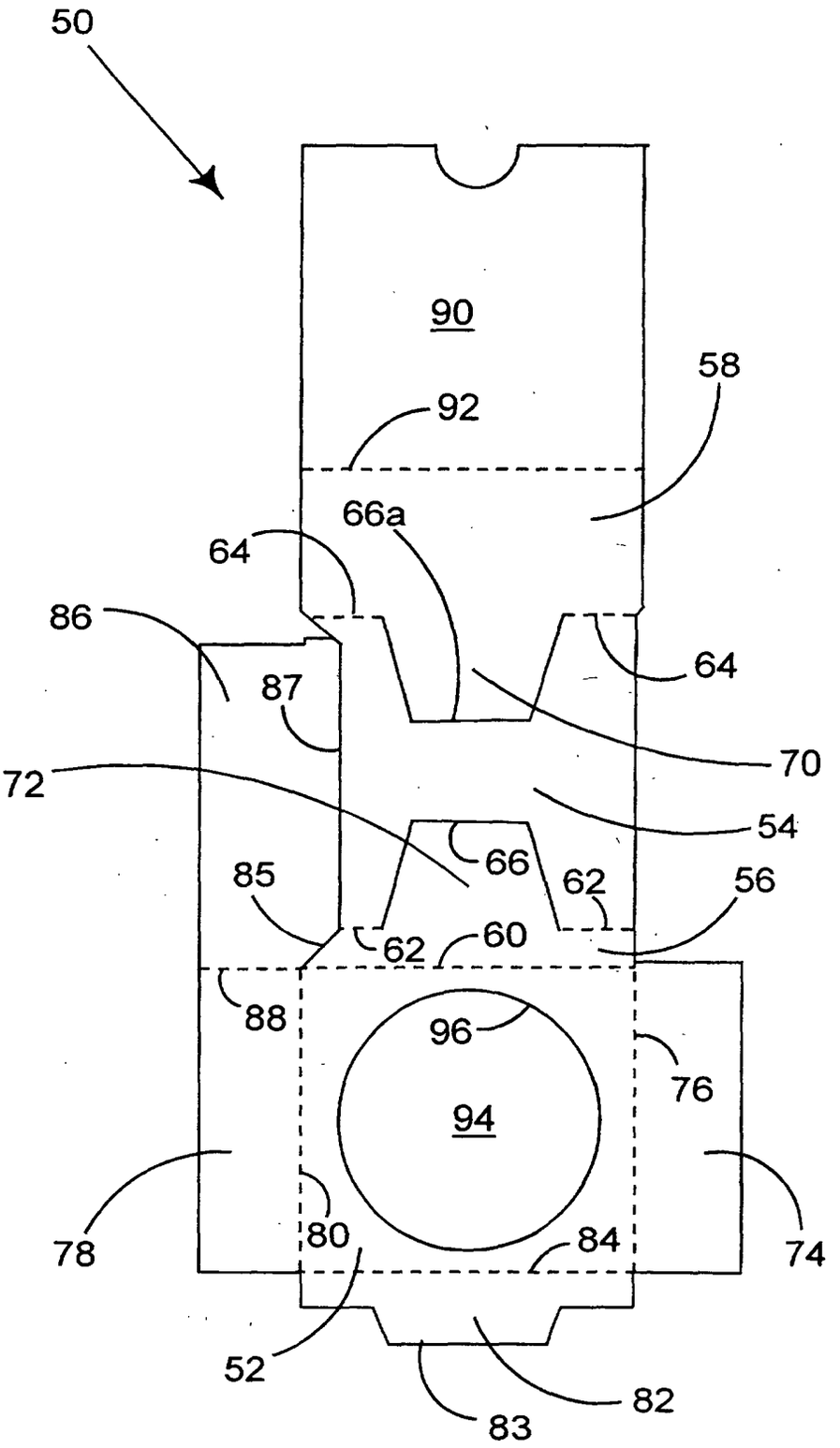
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FIGURE 2

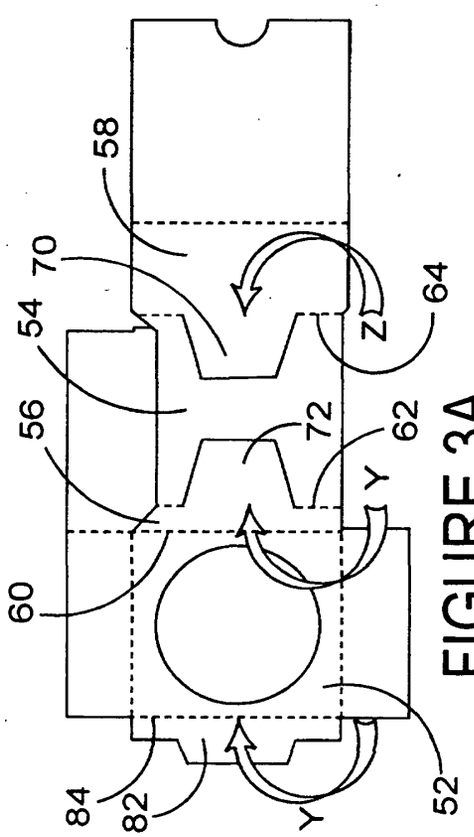

FIGURE 3A

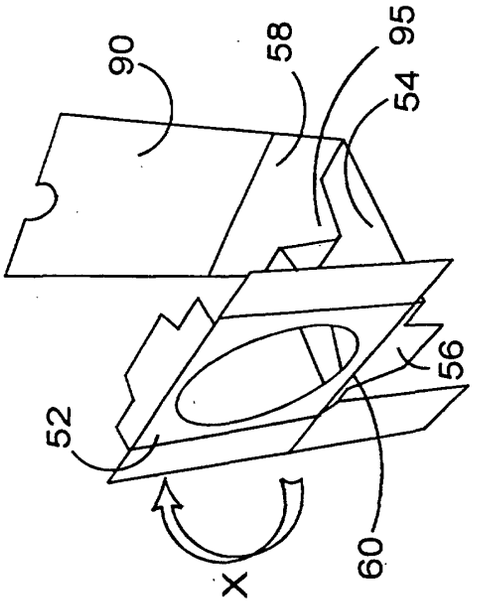

FIGURE 3B

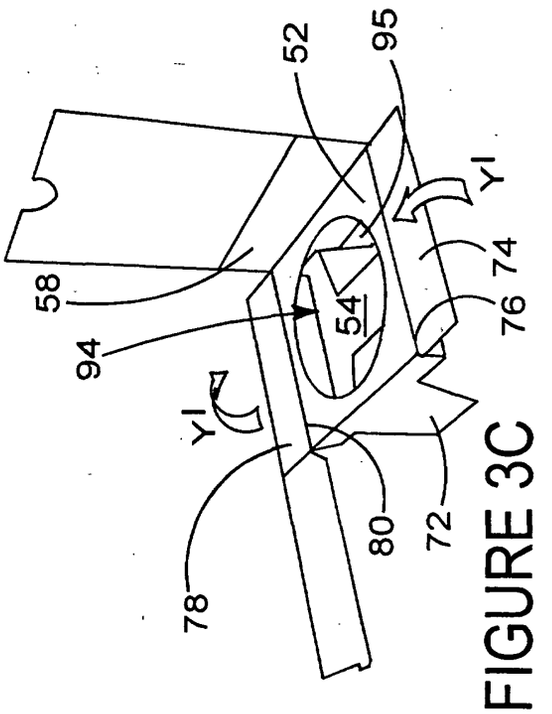

FIGURE 3C

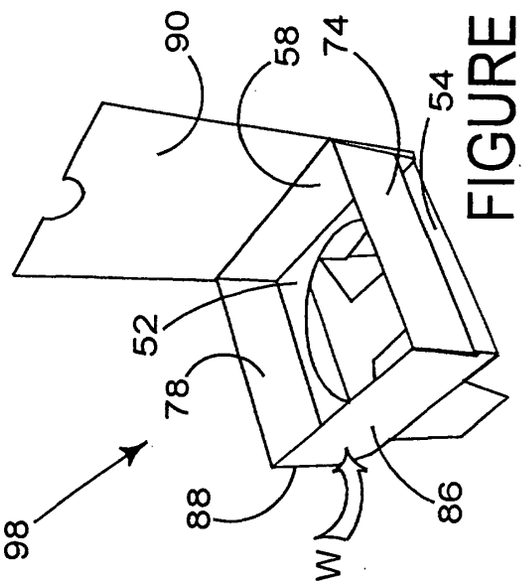

FIGURE 3D

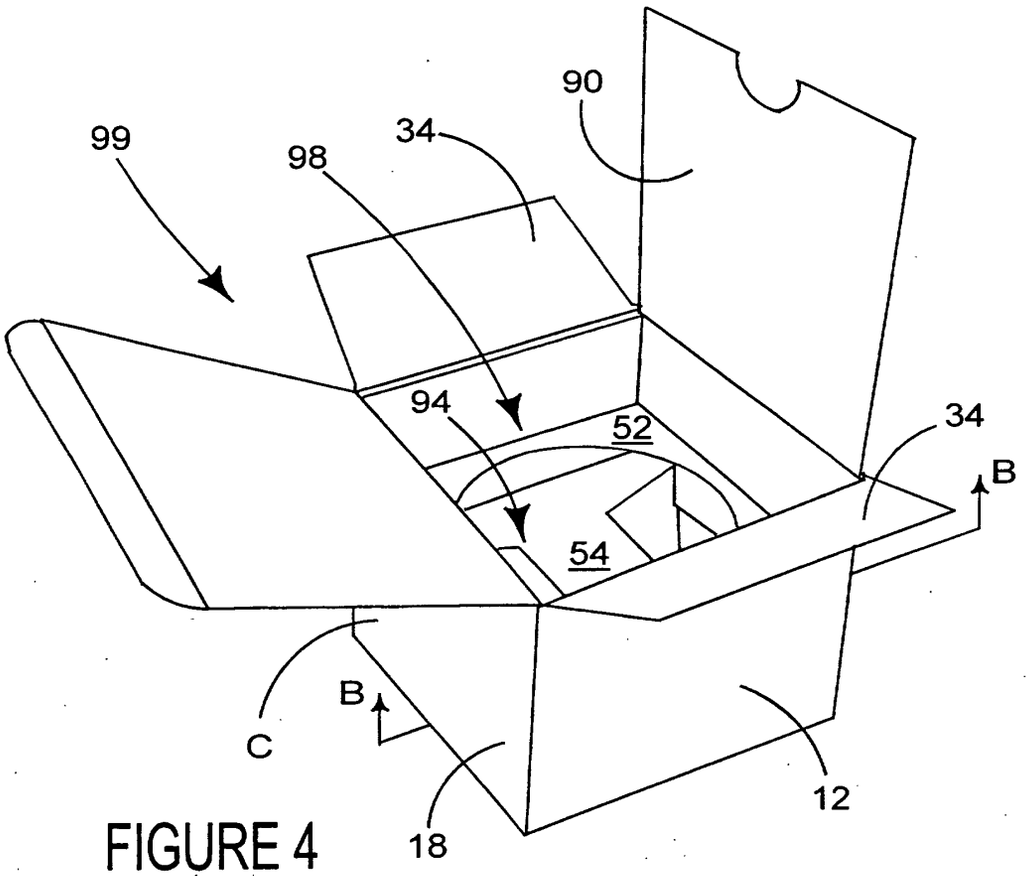

FIGURE 4

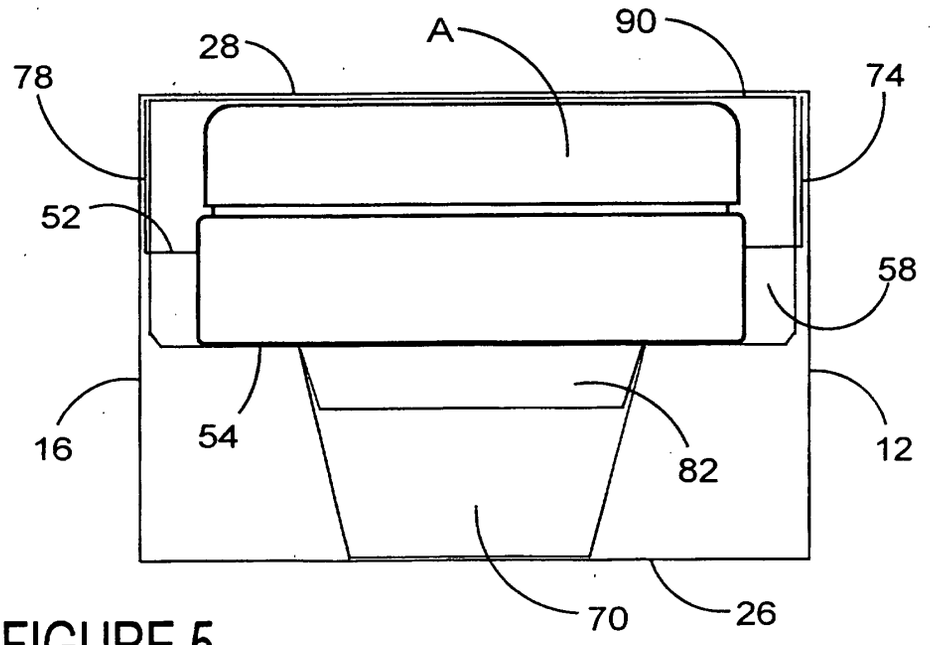

FIGURE 5

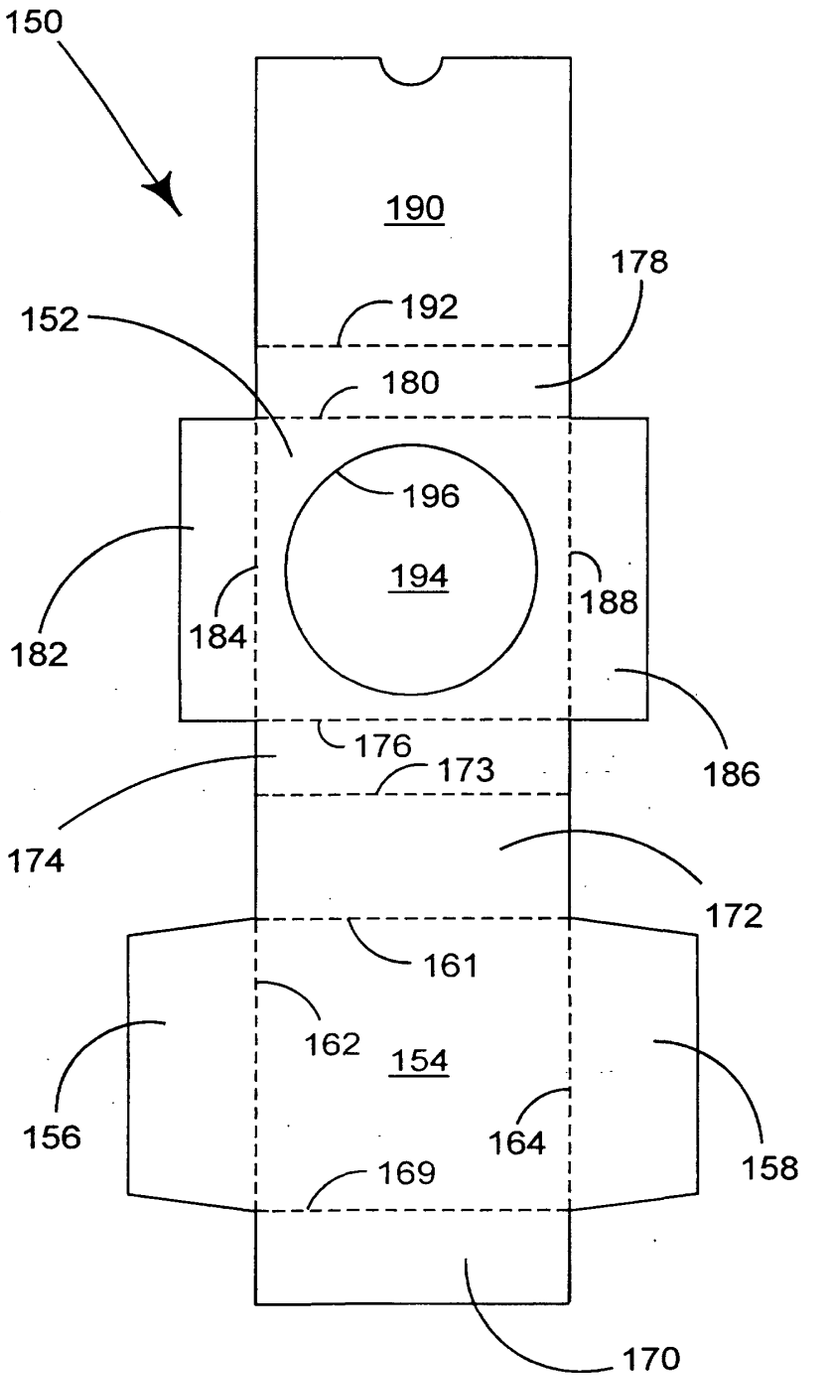
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FIGURE 6

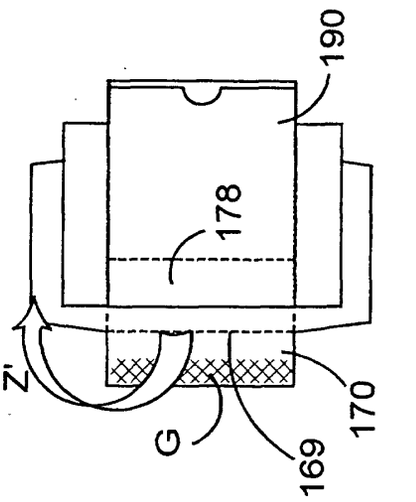

FIGURE 7B

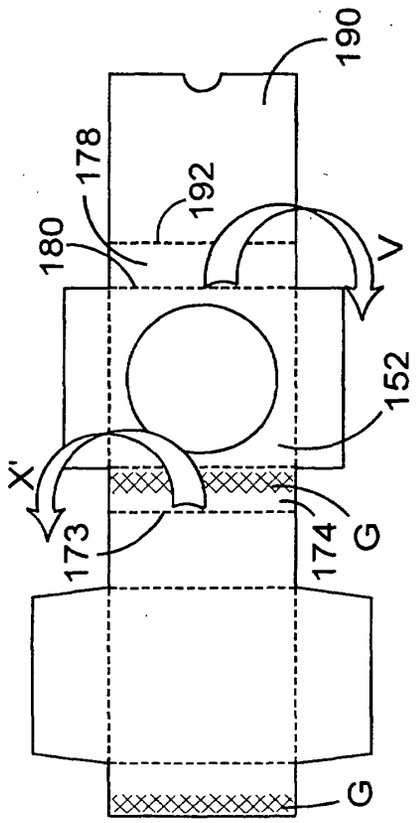

FIGURE 7A

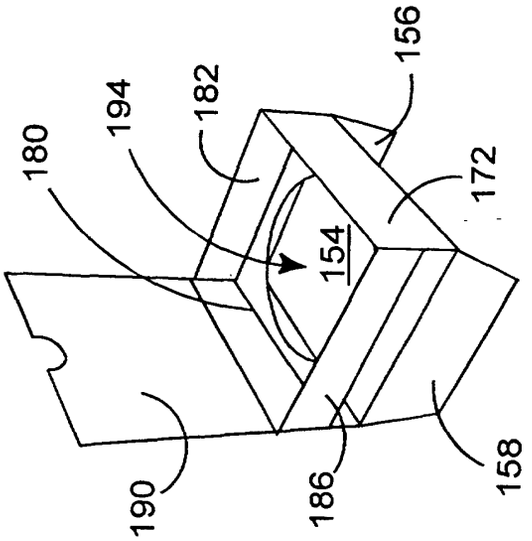

FIGURE 7E

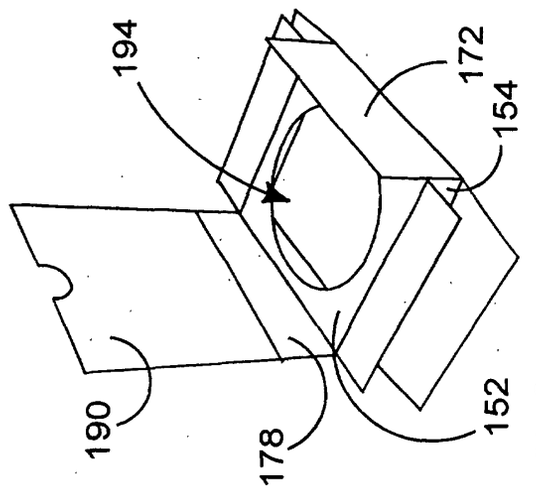

FIGURE 7D

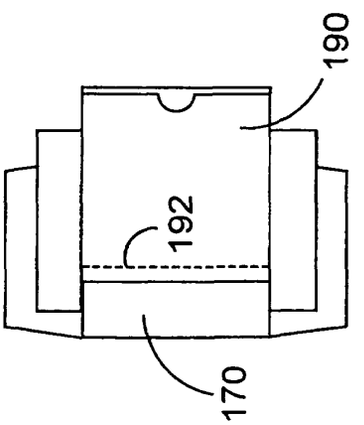

FIGURE 7C

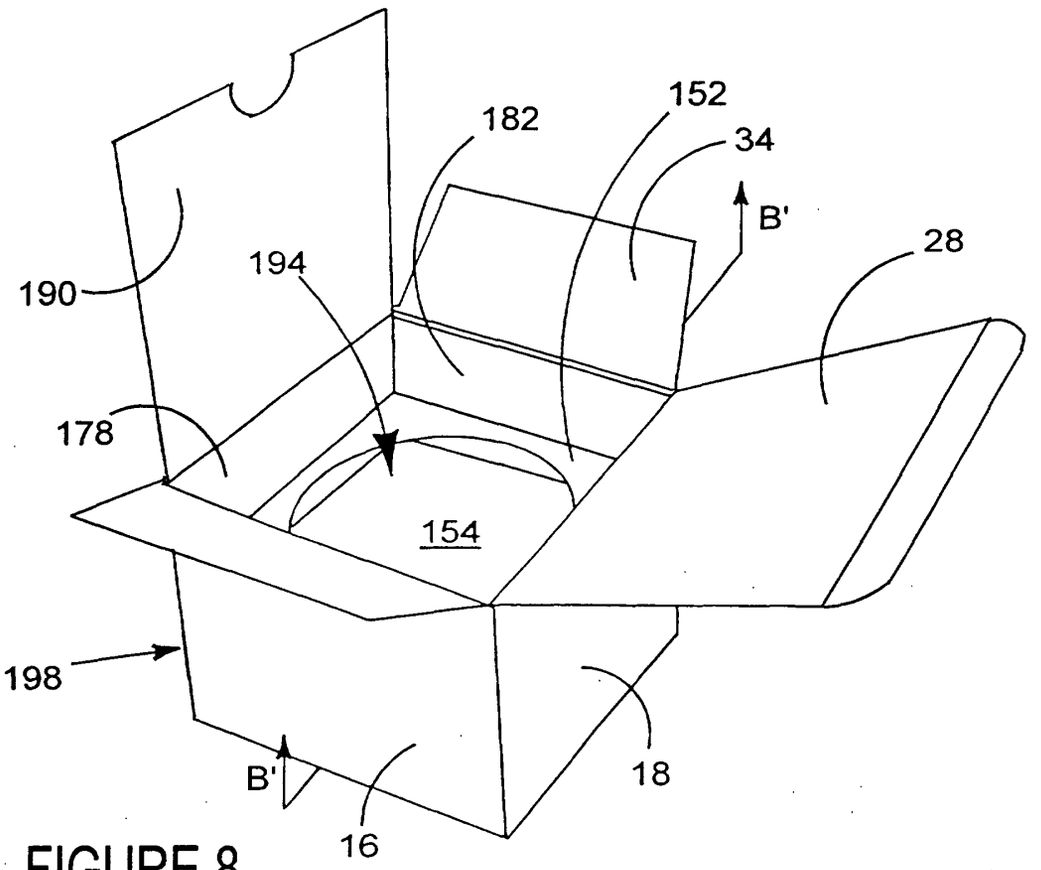

FIGURE 8

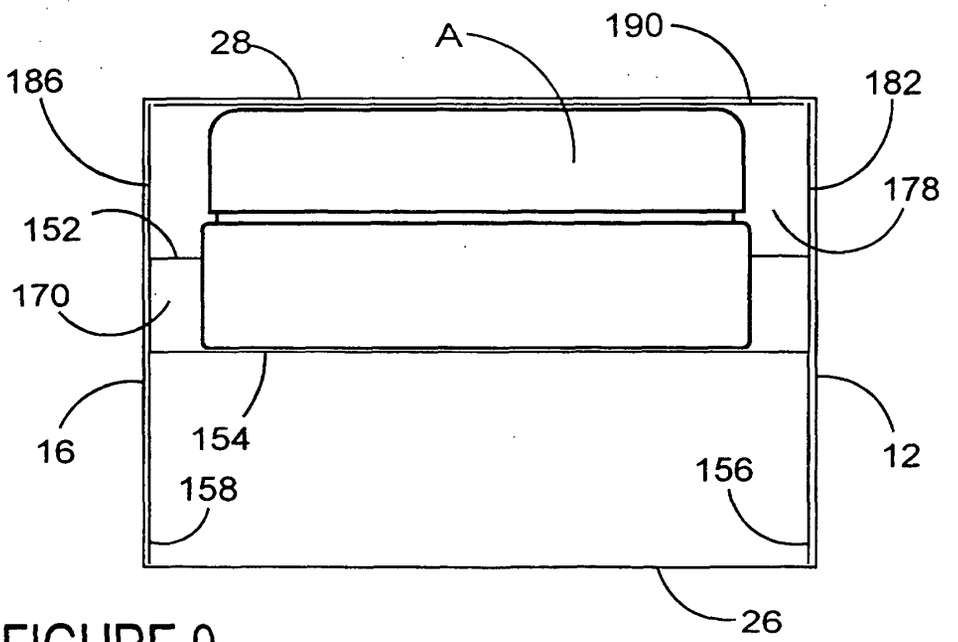

FIGURE 9

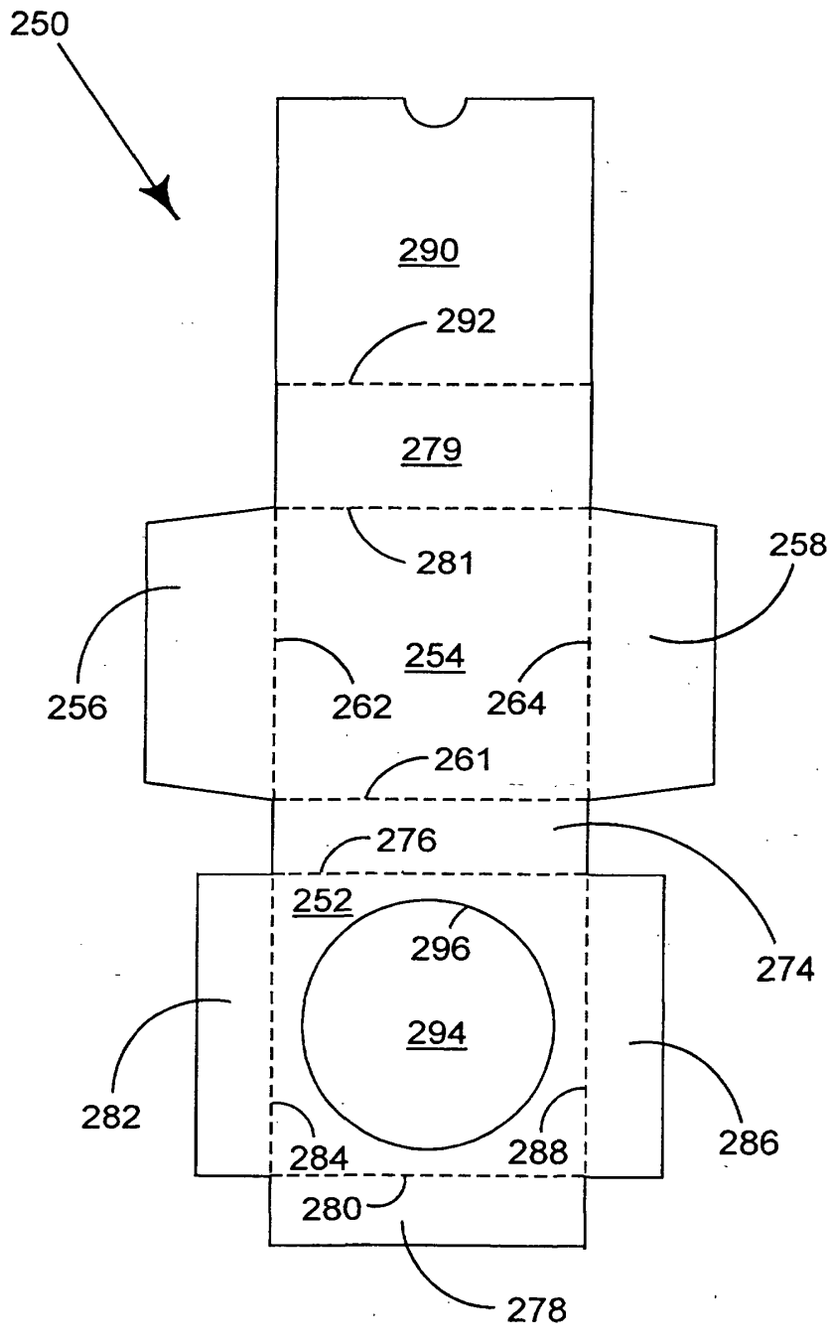
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FIGURE 10

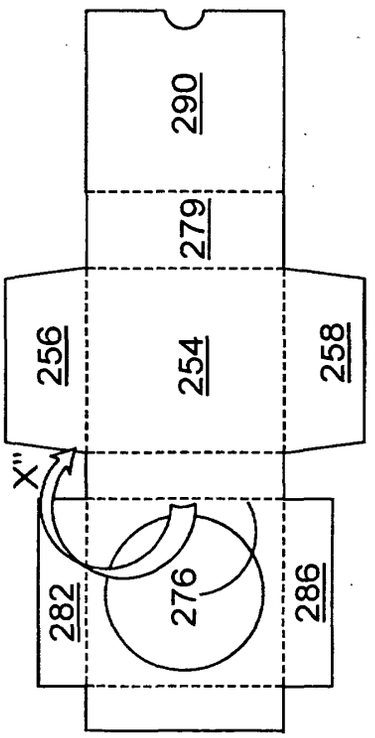

FIGURE 11A

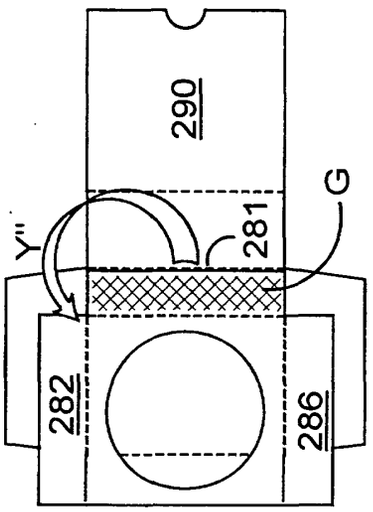

FIGURE 11B

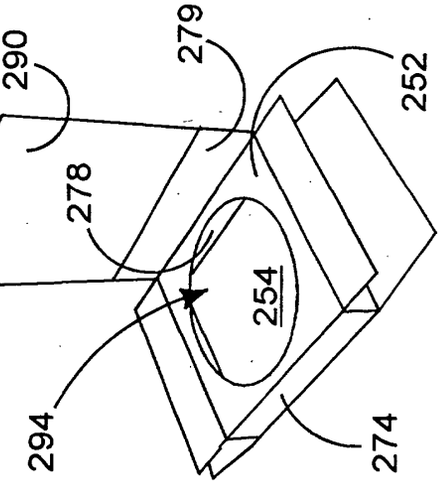

FIGURE 11D

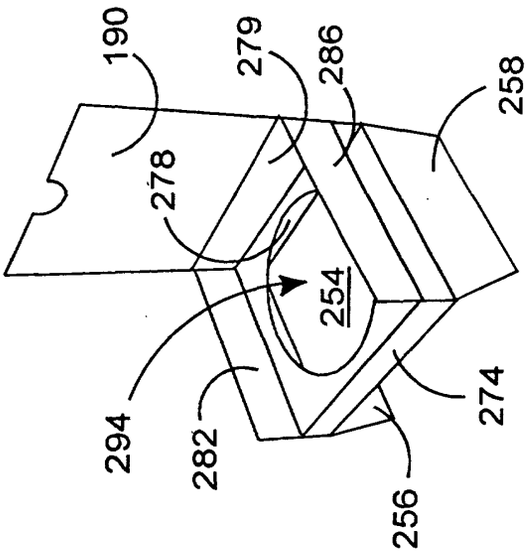

FIGURE 11E

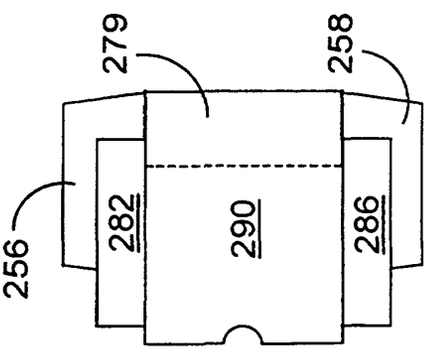

FIGURE 11C

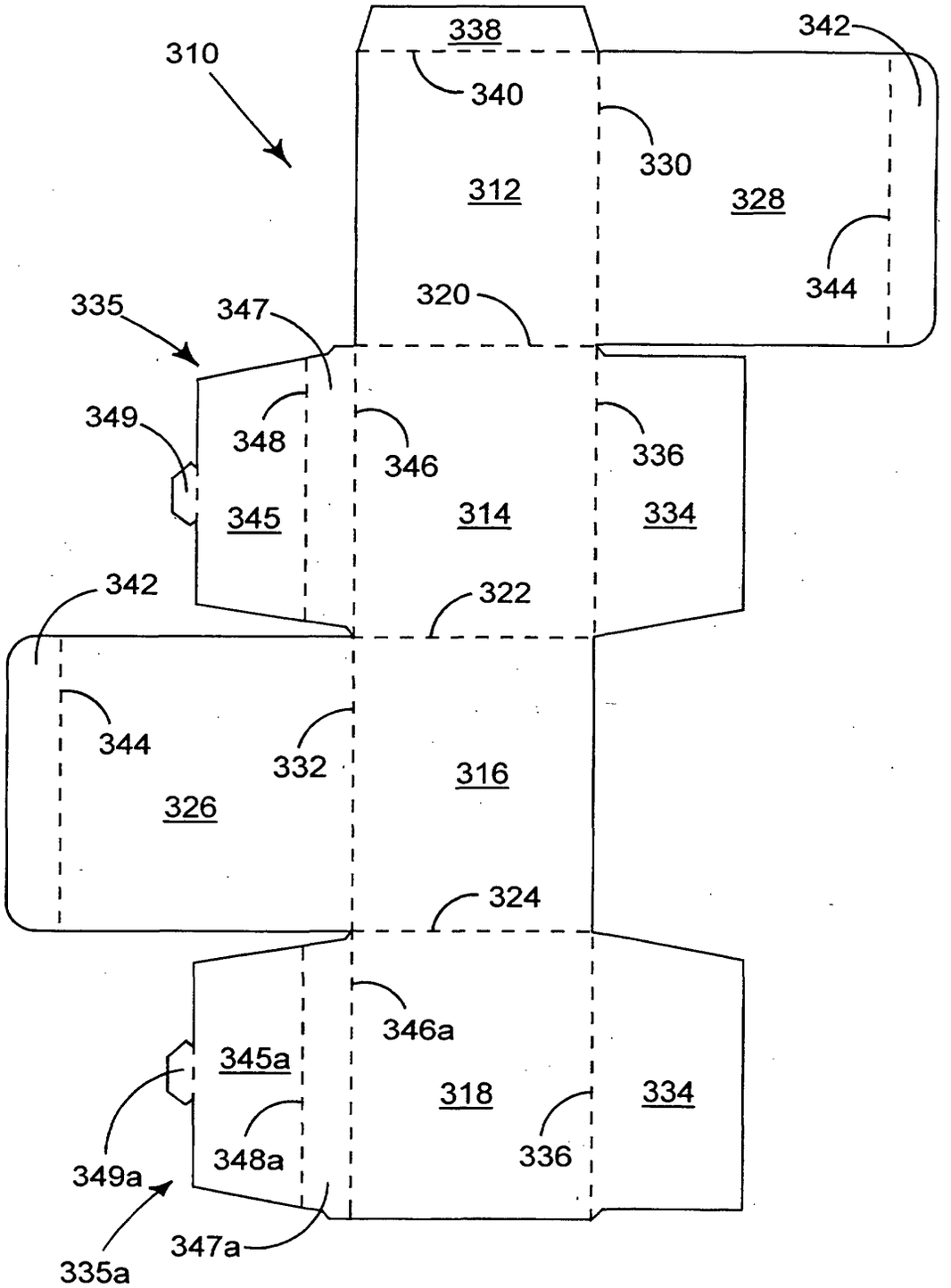
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FIGURE 12

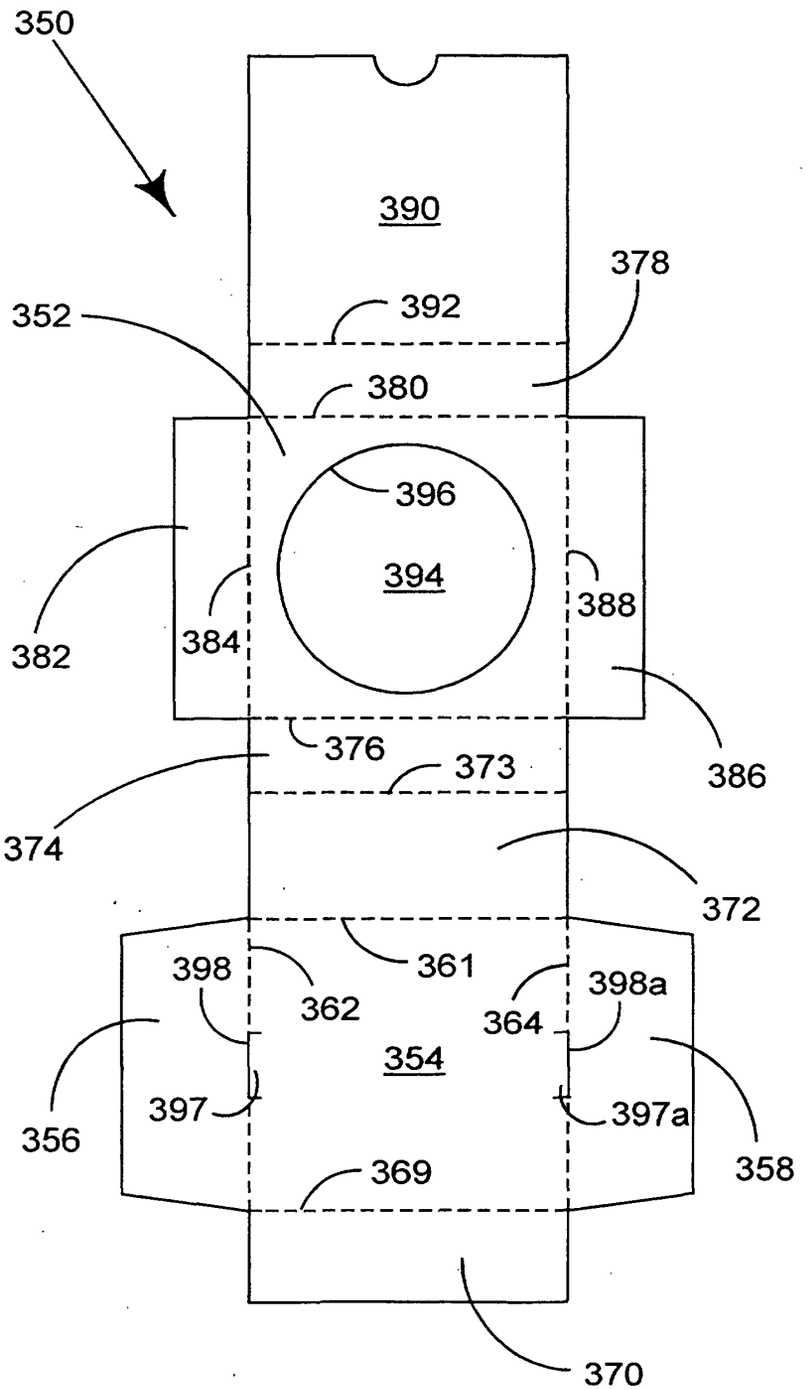
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FIGURE 13

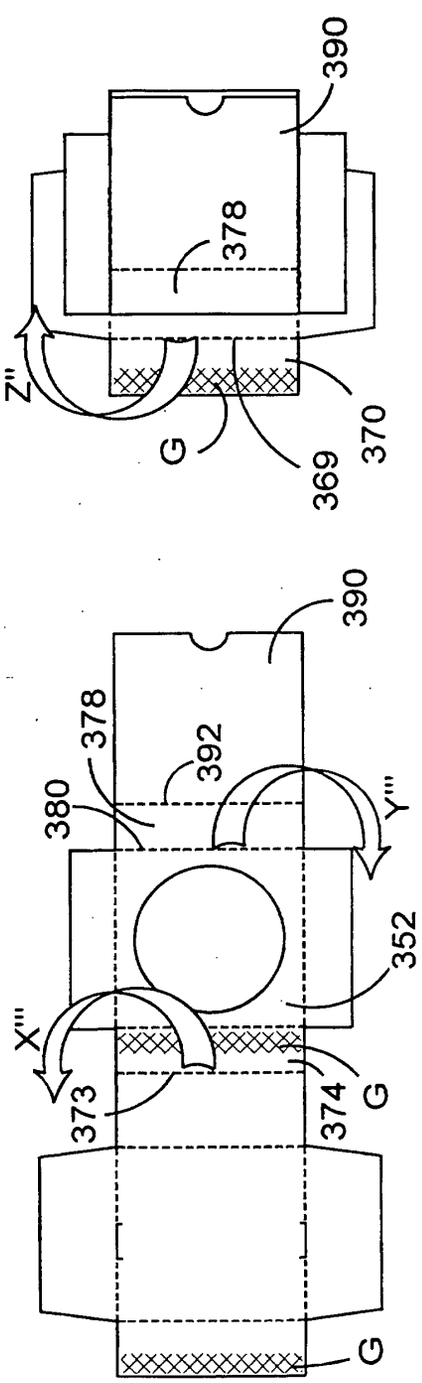

FIGURE 14B

FIGURE 14A

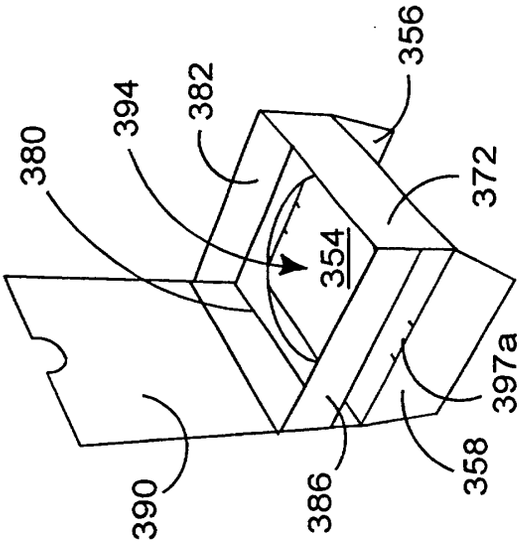

FIGURE 14E

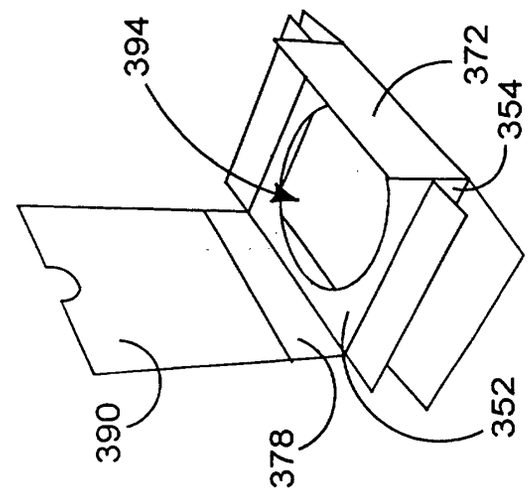

FIGURE 14D

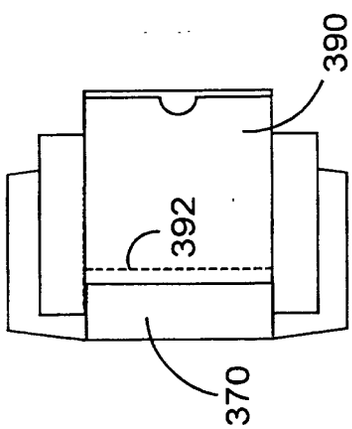

FIGURE 14C

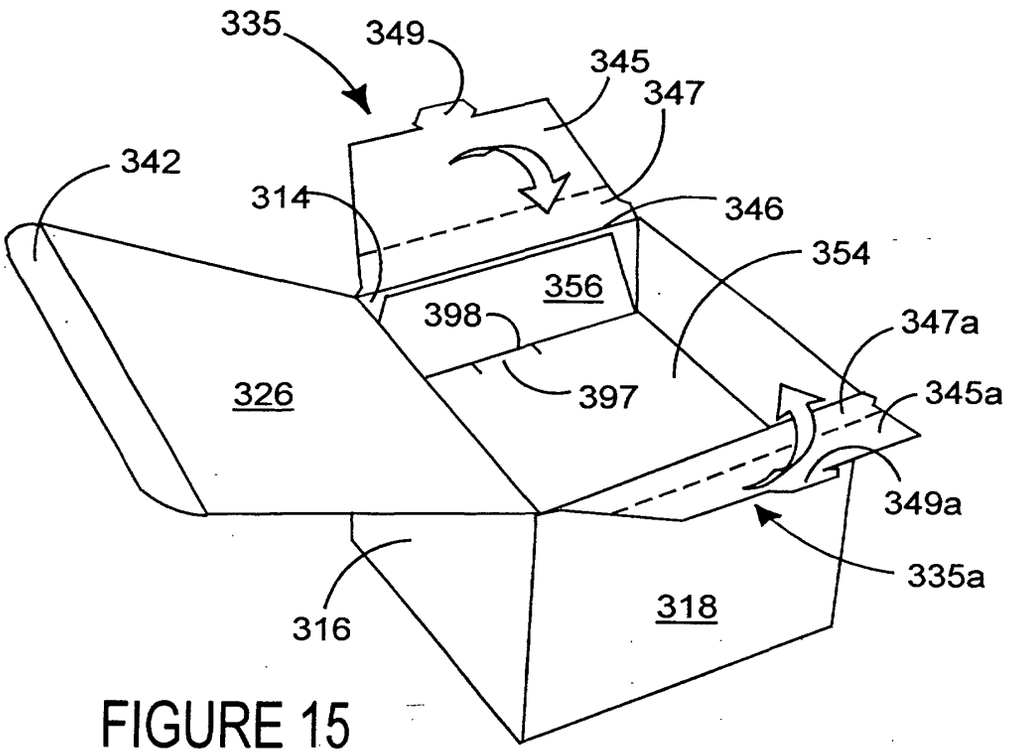

FIGURE 15

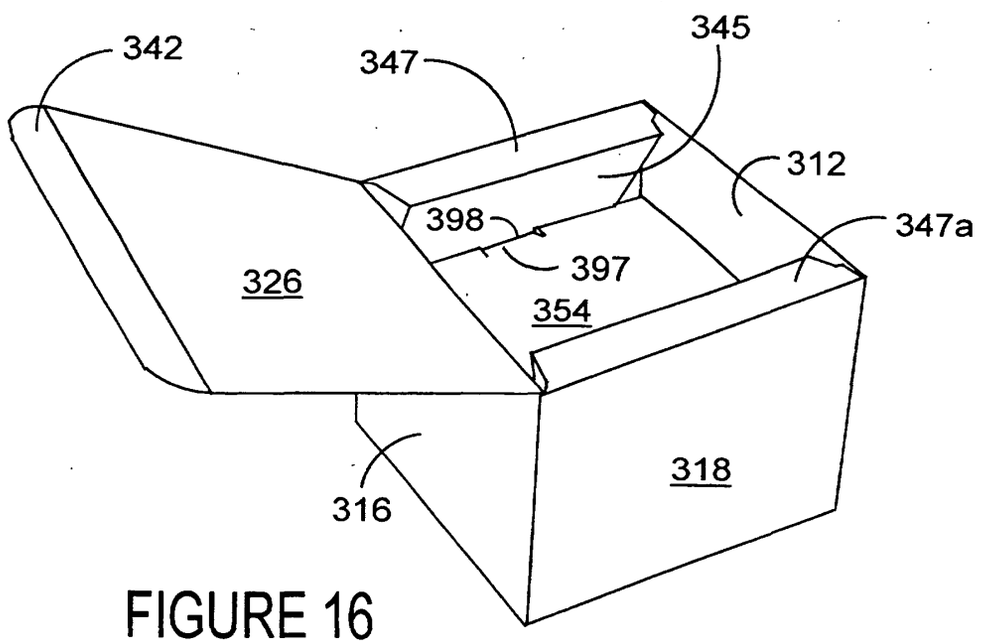

FIGURE 16

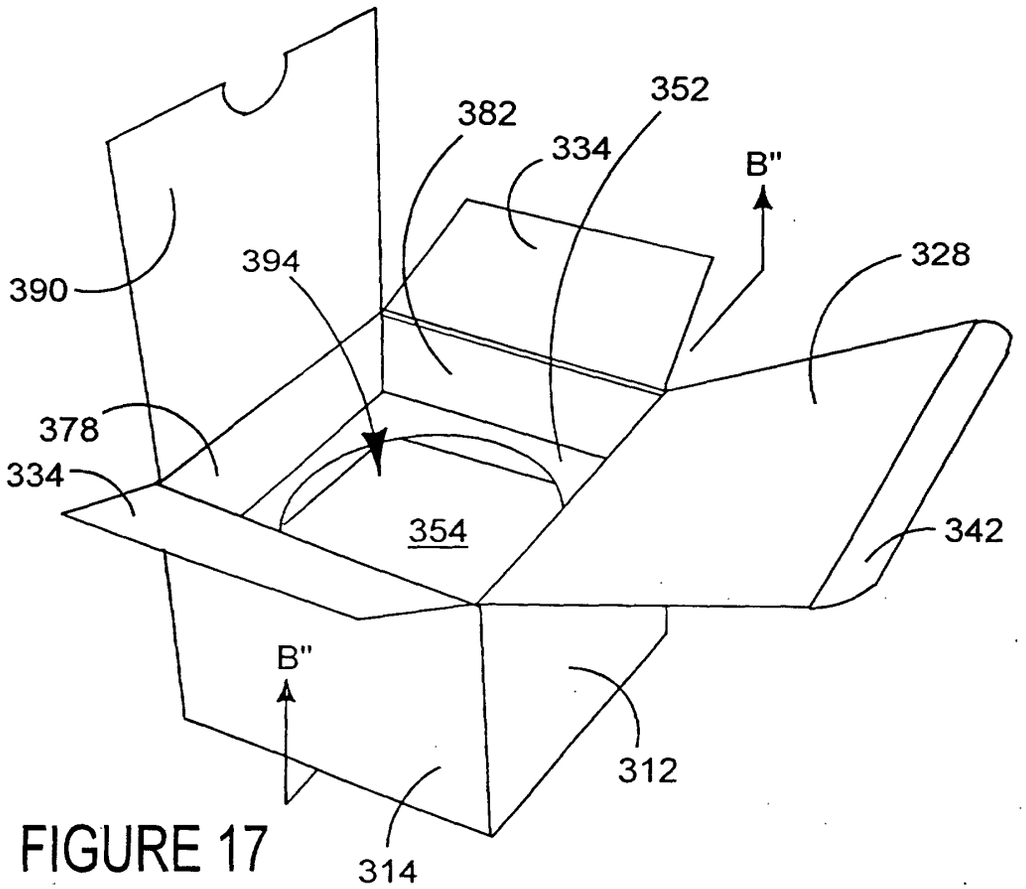

FIGURE 17

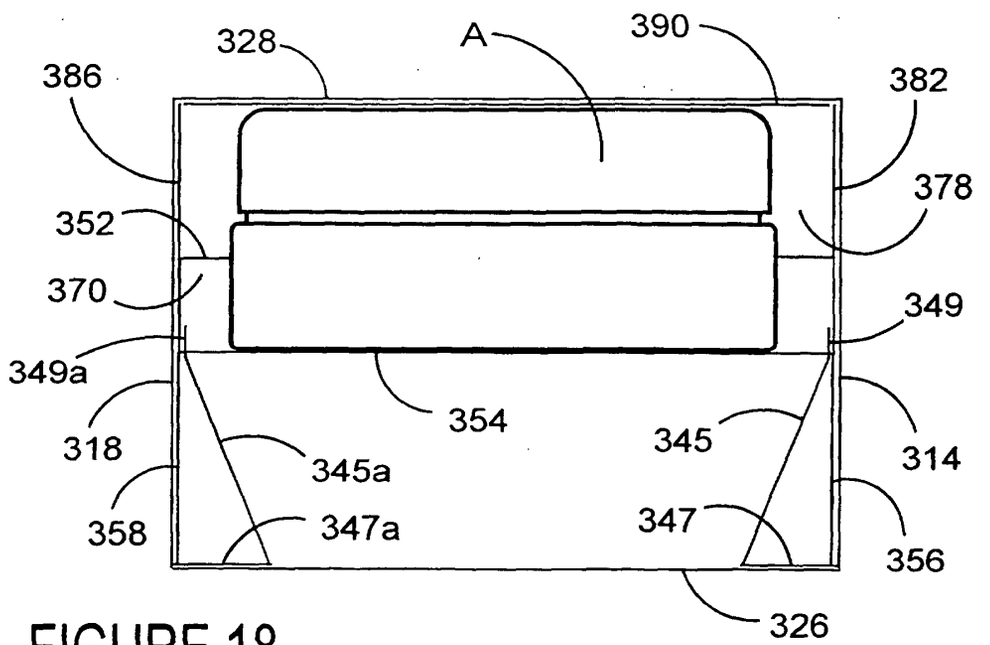

FIGURE 18