

[54] CARTONS, TRAYS AND THE LIKE

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[58] Field of Search 229/32, 31 R; 206/65 S,
206/65 B, 65 R, 427, 432

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[57] ABSTRACT

Articles are assembled on a pre-cut blank of cardboard or like material which is formed into a tray around the articles, the tray having a substantially rectangular base with diagonal corners and first and second pairs of peripheral wall portions. The blank is scored and provided with cut-outs to form wall corner portions and uniting portions at the ends of corresponding first wall forming portions and also to form strengthening tabs. The tray is erected by first erecting the strengthening tabs and by then erecting the first and second wall forming portions and finally bending the corner portions and uniting portions so that the latter can be secured to the second wall forming portions.

2 Claims, 5 Drawing Figures

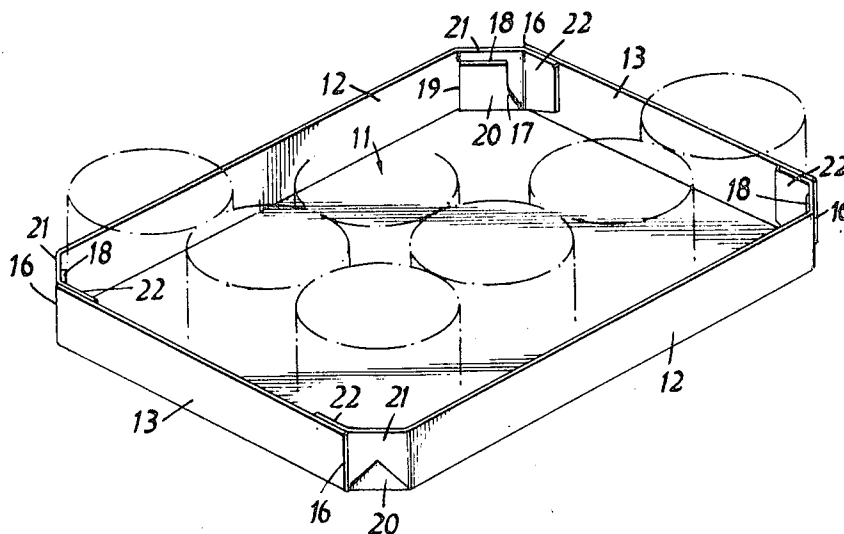


FIG. 1.

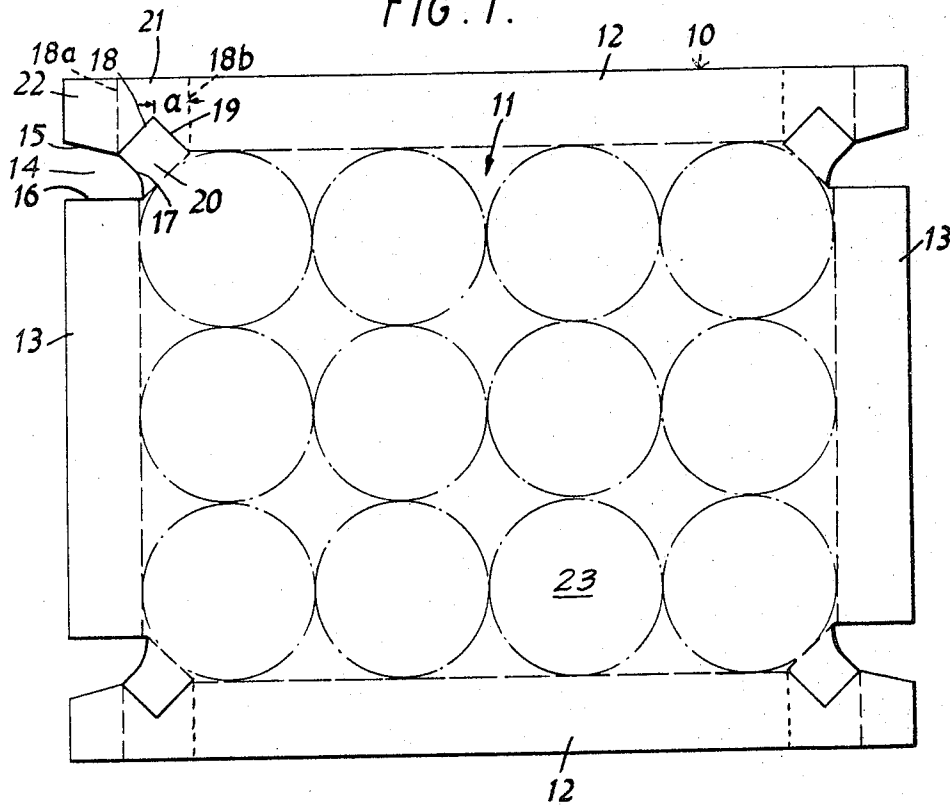


FIG. 2.

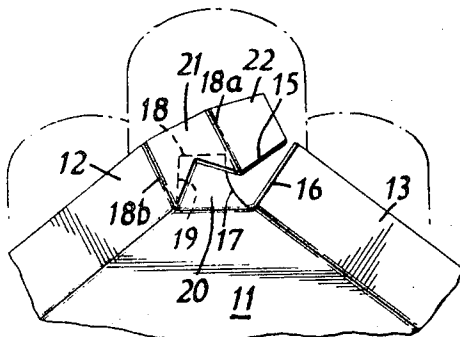


FIG. 3.

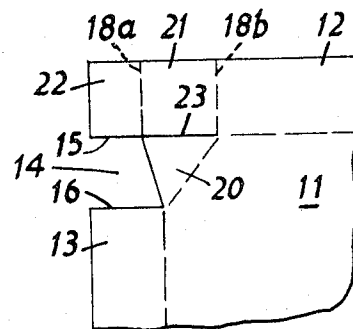


FIG. 4.

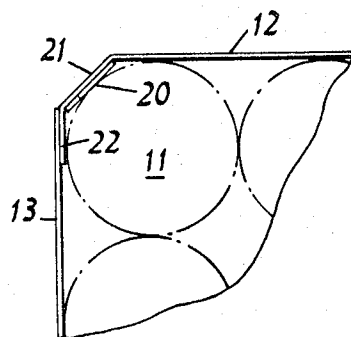
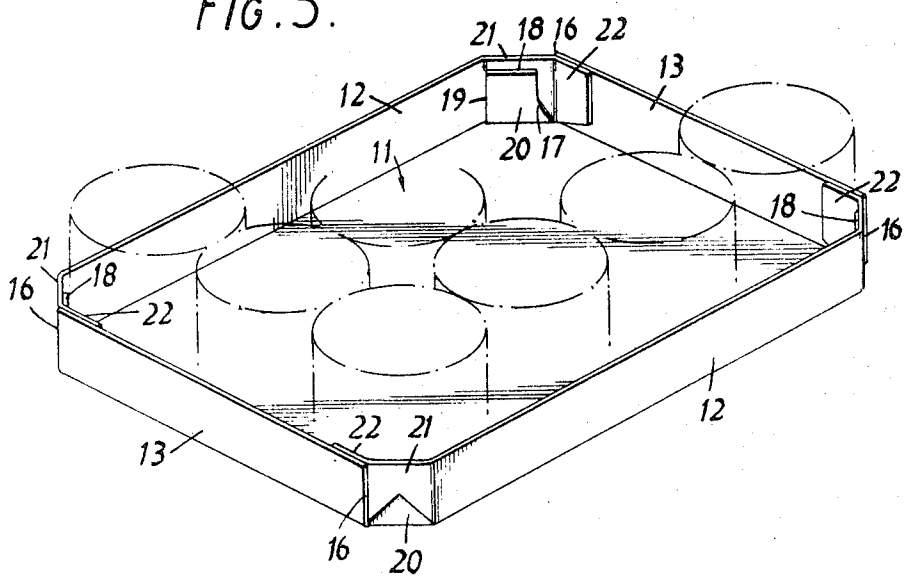


FIG. 5.



CARTONS, TRAYS AND THE LIKE

The present invention relates to packages consisting of a tray and a plurality of articles on the tray.

One of the techniques in the formation of such packages is to place a pre-cut blank of cardboard or like flexible material on a support in a forming machine, to place the articles on the blank and then to erect the wall portions of the blank around the articles. Numerous proposals have been made for the shape of the pre-cut blanks, the shapes differing according to whether the corners of the tray or carton are to be circular, square or diagonal and also according to the method of fixing together the erected wall portions. In some cases the shape of the pre-cut blank is such as to enable the wall portions to interlock without the use of adhesives but it is more usual for the pre-cut blanks to be shaped so as to provide tabs to enable adjacent wall portions to be secured together by the use of a suitable adhesive.

The present invention relates to a package in which the tray is formed from a pre-cut blank of the type having tabs which enable the adjacent wall portions to be secured together by a suitable adhesive and which when the wall portions are erected provide a tray with diagonal corners.

According to the invention, in a package consisting of a tray and a plurality of articles placed on the tray, the tray is formed around the articles from a pre-cut blank of cardboard or like material having a substantially rectangular base portion with diagonal corners and peripheral wall portions surrounding the base portion, the blank having score lines defining the base portion and two parallel score lines forming wall corner portions and uniting portions towards the ends of corresponding first wall portions, the blank also having cut-outs formed at both ends of corresponding second wall portions and strengthening tabs formed by at least one cut between said parallel score lines, one edge of each of said cut-outs and the score lines of the diagonal corners, the tray being constructed around the articles, firstly by erecting said strengthening tabs, secondly by erecting said second wall portions, thirdly by erecting said first wall portions and finally by bending the corner-forming portions and uniting portions so that the uniting portions are securable to said second wall-forming portions against the articles whereby the strengthening tabs are wholly on the inside of the corner portions of the tray.

The invention will be understood from the following description of two embodiments taken in conjunction with the accompanying drawing in which:

FIG. 1 shows a plan view of the pre-cut blank,

FIG. 2 shows a view of one corner of the tray or carton in the course of erection,

FIG. 3 shows one corner of an alternative pre-cut blank,

FIG. 4 shows a plan view of one corner of the tray when erected and

FIG. 5 shows a perspective view of the tray formed around the articles.

Referring to FIG. 1 of the drawing, it should be explained that the portion of the blank 10 which forms the base of the tray, i.e. the area 11, is shown as small compared with the wall portions 12 and 13 in order to reduce the dimensions of the figure. It should also be explained that the dotted lines are lines along which the

blank is bent and may be creases or scorings in the blank.

As shown in FIG. 1, a cut-out 14 is provided in each corner portion of the blank, the cut-out portion having two edges 15 and 16 of which the edges 16 are perpendicular to the shorter sides of the blank while the edge 15 has a slight slope. The cut-out is completed by a further edge 17. An important feature of the invention is the formation of strengthening tabs 20 by the provision of cuts 18 and 19 in the blank, the distance a being half the distance between the creases 18a and 18b. Similar shaping is, of course, employed at the four corners of the blank.

In the formation of the tray, the articles 23 are first placed on the blank as shown in FIG. 1 and the blank is erected into a tray by a suitable forming tool. Forming tools for this purpose are well known, the general principle of operation being that the loaded tray is placed on a platform which is lowered through a die. The passage of the tray through the die erects the strengthening tabs 20 and the wall portions in the appropriate order. In the present instance the forming tool would be arranged to first erect the strengthening tabs 20 defined by the edges 17, 18 and 19. Next the wall portions 12 are erected and the portions 21 and 22 are bent along the scores 18a and 18b to form respectively corner-forming portions and uniting portions, the portions 21 engaging with the strengthening tabs 20 while the portions 22 are adjacent to the wall portions 13 which are the final portions to be erected. FIG. 2 shows one corner in the course of erection. At a suitable stage in the formation of the tray an applicator applied adhesive to the uniting portions 22 to enable them to be secured to the wall portions 13 to complete the formation of the tray.

It will be understood that the formed tray remains within the forming die for a period sufficient to enable the pressure exerted on the uniting portions 22 and the wall portions 13 by the walls of the die and the articles on the tray to ensure firm adhesion between the two portions. The uniting portions 22 may extend either along the outer or inner surface of the wall portions 13 but the latter is preferred because the adhesive is then applied to the outer surface of the each uniting portion 22 and there is less chance of any adhesive seeping on to the strengthening tab. The preferred arrangement is shown in the plan view of one corner of the erected tray illustrated in FIG. 4.

A further embodiment of the invention is shown in FIG. 3 in which, instead of the cuts 18 and 19 of FIG. 1, a single cut 23 is formed in alignment with the edge 15 of the cut-out. This merely alters the shape of the strengthening tabs, the erection sequence being the same as that described for the embodiment of FIG. 1.

It will be seen that, when the tray is erected around the articles, the articles are restrained against movement on the base of the tray and the use of a shrink-wrapped film may be considered unnecessary although the use of such a film may be advantageous for other reasons.

I claim:

1. A package formed from a plurality of articles and a tray blank of cardboard or like material, said tray blank comprising:

a. a substantially rectangular base portion having diagonal corners and defined by first and second

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- pairs of parallel score lines and by a respective diagonal score line at each corner;
- b. first and second pairs of peripheral wall portions defined by said first and second pairs of parallel score lines and by the periphery of the blank; 5
- c. a uniting portion and a wall corner portion defined at each end of each of said first pair of peripheral wall portions by the end of the peripheral wall portion, the periphery of the blank, and a pair of parallel score lines, the uniting portion being nearer the end of the wall portion and said pair of parallel score lines being spaced apart by a distance substantially equal to the length of the diagonal score line; 10
- d. a cut-out and a substantially rectangular strengthening tab at each corner of the blank, said tab at each said corner being defined by said diagonal score line at the corner, the cut-out at the corner and a pair of cuts between said pair of parallel score lines defining said uniting and wall corner portions at the associated corner, said pair of cuts being substantially at right angles to one another, and said cut-out at each corner being defined by said tab at the corner, the end of the peripheral 15

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- wall portion of the second pair thereof at the corner and said uniting portion at the corner;
- said articles being disposed in an ordered array on said base portion of said blank and said peripheral wall portions being folded about said first and second pairs of parallel score lines whereby they are erected around said articles;
- said uniting and wall corner portions at each corner being folded about said pair of parallel score lines defining them such that said wall corner portions form diagonal wall corners;
- each said uniting portion being secured to an end of one of said second pair of peripheral wall portions; and
- each said strengthening tab being folded about said diagonal score line defining it so that it is inside and adjacent to the corresponding wall corner forming portion.
2. The package of claim 1, wherein each said uniting portion is adhesively secured to the inside of said corresponding end of one of said second pair of peripheral wall portions.

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