United States Patent

Funkhouser

[15] **3,669,342**

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[54] ARTICLE CARRIER

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[73] Assignee: **The Mead Corporation**

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[52] **U.S. Cl.** .....**229/40,** 206/65 C

[51] **Int. Cl.**.....**B65d 33/16**

[58] **Field of Search**.....229/40; 206/65 C, 45.33

[56] **References Cited**

UNITED STATES PATENTS

2,849,111	8/1958	Fielding	206/65 C
3,156,377	11/1964	Wysocki	229/40 X
3,157,309	11/1964	Chidsey, Jr. et al	229/40 X
3,330,463	7/1967	Wood	206/65 C

FOREIGN PATENTS OR APPLICATIONS

6,403,018	9/1965	Netherlands	229/40

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Assistant Examiner—James R. Garrett
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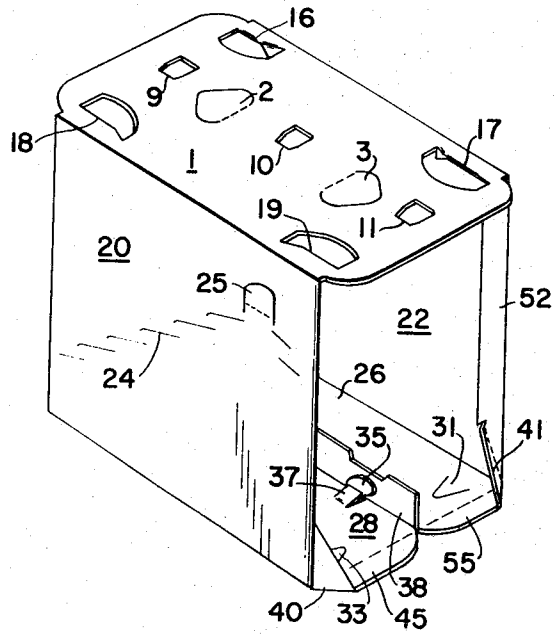
[57] **ABSTRACT**

An article carrier of the open ended wrap-around type having foldably joined top, side and bottom walls is provided with article engaging and retaining structure at its bottom corners which structure comprises a holding tab disposed astride the carton corners and which is foldably joined along angularly related fold lines to an anchoring strap and an anchoring panel which in turn are foldably joined respectively to the carton side and bottom walls. The fold line between the anchoring flap and side wall is spaced inwardly from the fold line between the anchoring panel and the bottom wall and the anchoring panel is foldably joined to the bottom panel so as to accommodate movement of the anchoring panel out of the plane of the bottom wall during the formation of the carrier.

5 Claims, 4 Drawing Figures



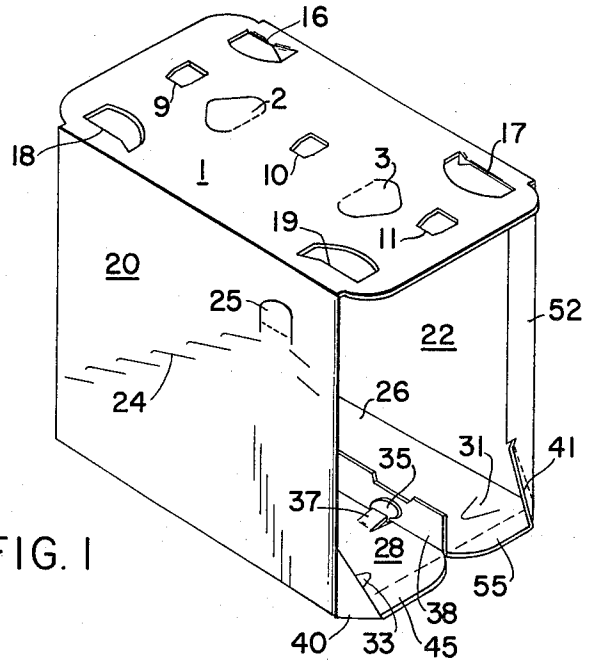


FIG. 1

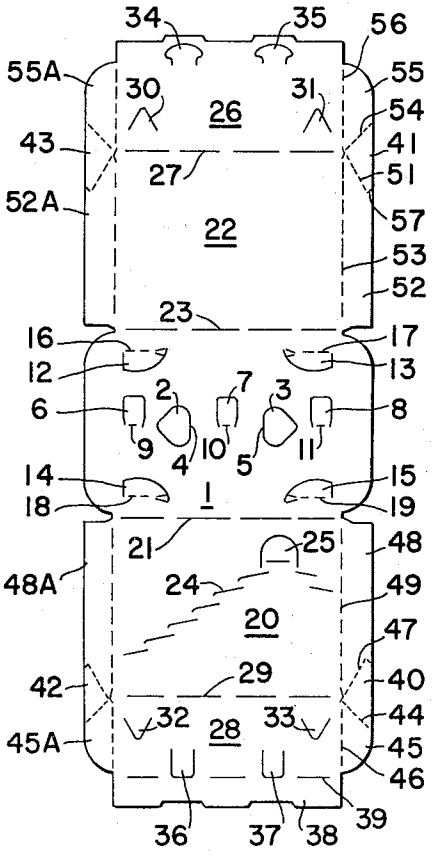


FIG. 2

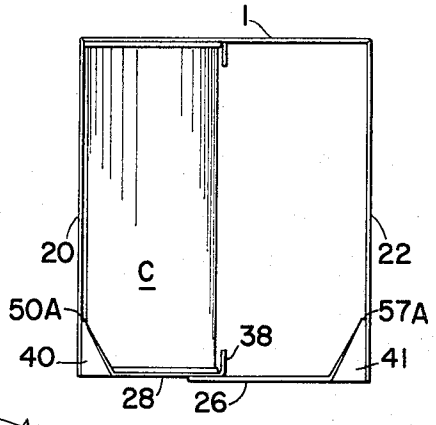


FIG. 3

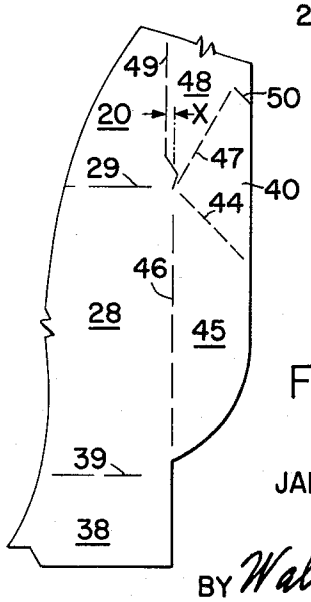


FIG. 4

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ARTICLE CARRIER

Known wrap around type article carriers are provided with web structure at their corners which in some instances is provided with a fold line aligned with the fold line between the associated wall panels of the wrapper. Of course such a fold line weakens the web and may for this reason impair the security of the package. A web is disclosed and claimed in U.S. Pat. No. 3,330,463 which is constructed in such manner that a fold line along the body portion of the web is not required and this type of web of course is much more durable and provides a high degree of package security. The web of the aforementioned patent is foldably joined at one end to one of the wall panels of the wrapper and at the other end to an anchoring flap which in turn is folded into flat face contacting relation with an adjacent side wall.

According to this invention, a corner web structure is provided for a wrap-around type article carrier wherein the web is not directly folded to either of the carrier wall panels but instead is foldably joined along angularly related fold lines to an anchoring flap which in turn is foldably joined to one of the wall panels and to an anchoring panel which in turn is foldably joined to another wall panel. In order to facilitate the formation of the wrapper about a group of articles to be packaged, the anchoring panel itself is foldably joined according to this invention to its associated wall panel. In addition, folding of the anchoring flap is independent of folding of the anchoring panel during the initial stages of the formation of the package because of the fact that the fold lines for the anchoring flap and panel are disposed relative to each other in a transverse direction so that these flaps and the associated holding tab do not fold simultaneously.

For a better understanding of the invention reference may be had to the following detailed description taken in conjunction with the accompanying drawings in which

FIG. 1 is a perspective view of a set-up wrapper formed according to this invention from which the primary packages have been removed;

FIG. 2 is a plan view of the blank from which the carrier of FIG. 1 is formed;

FIG. 3 is an end view of the carrier such as is shown in FIG. 1 and which shows one row of packaged articles within the carrier; and in which

FIG. 4 is an enlarged plan view of a portion of the blank depicted in FIG. 2 and which incorporates the principal elements of the invention.

In the drawings, the numeral 1 designates the top wall panel of the carrier. Finger gripping tabs 2 and 3 are struck from top wall panel 1 and are foldably joined thereto along fold lines 4 and 5 respectively. Medial article separating tabs 6, 7 and 8 are struck from top wall panel 1 and are foldably joined thereto along fold lines 9, 10 and 11 respectively. Can retaining tabs 12, 13, 14 and 15 are struck from top wall 1 and are foldably joined thereto along the fold lines generally designated by the numerals 16, 17, 18 and 19 respectively.

Side wall panel 20 is foldably joined to top wall panel 1 along fold line 21 and side wall panel 22 is foldably joined to top wall panel 1 along fold line 23. A weakened tear line is formed in side wall 20 and comprises a plurality of tear slits 24 together with a pull tab 25 which structure is conventional.

The bottom wall of the carrier is a composite structure and comprises a lap panel 26 foldably joined to side wall 22 along fold line 27 and a lap panel 28 foldably joined to side wall 20 along a fold line 29.

For the purpose of tightening the wrapper about a group of articles to be packaged, tightening slits or apertures 30 and 31 are formed in lap panel 26 while similar tightening slits or apertures 32 and 33 are formed in lap panel 28. As is well known, machine elements enter these tightening apertures and move toward each other in such manner as to tighten the wrapper about the article group disposed therein.

Once the wrapper is tightened, it is secured about the articles therein by means of locking tabs formed in lap panel 26 and designated by the numerals 34 and 35 which are driven by machine elements into the apertures defined by retaining tabs 36 and 37. Disposed between the two rows of primary packages, is the medial partition panel of keel 38 which is foldably joined to an edge of lap panel 28 along a fold line 39.

While the wrapper is being folded with cans therein, the tabs 12, 13, 14 and 15 are folded inwardly into flat face contacting relationship with the inner surface of the top wall panel 1 and into flat face contacting relationship with the tops of the end cans, the edges of the tabs being in engagement with the upwardly protruding flanges of the cans and hence serve to hold the upper portions of the cans against dislodgment through the ends of the wrapper.

In order to hold the cans at their bottom portions and in accordance with this invention, holding tabs are disposed astride the bottom corners of the carrier. These holding tabs are designated in in the drawings by the numerals 40, 41, 42 and 43. Holding tab 40 is foldably joined along fold line 44 to anchoring panel 45 which itself is foldably joined along fold line 46 to an end edge of lap wall panel 28. In addition, folding tab 40 is foldably joined along fold line 47 to anchoring flap 48 which in turn is foldably joined along fold line 49 to the end edge of wall panel 20. An article engaging slit 50 is formed at one end of fold line 47 and defines an edge 50A for engagement with the side of a can "C" as is best shown in FIG. 3.

The remaining holding tabs are similarly interrelated with the other parts. For example, holding tab 41 is foldably joined along fold line 51 to anchoring flap 52 which itself is foldably joined to wall panel 22 along fold line 53. Holding tab 41 is foldably joined along fold line 54 to anchoring panel 55 which in turn is foldably joined to lap wall panel 26 along a fold line 56. An article engaging slit 57 is disposed at one end of the fold line 51 and as is apparent in FIG. 3 forms an abutment edge 57A for engaging a can not shown in FIG. 3.

Since holding tabs 43 and 42 are related with the other elements in a manner identical to the relationship just described for holding tabs 40 and 41, a detailed description thereof is not deemed necessary and is not here included.

When the package is in the process of formation, the first step constitutes the withdrawal of a blank such as is shown in FIG. 2 from a hopper structure and the subsequent deposit of the blank astride a group of articles to be packaged such as two rows of three cans moving in synchronism with the blank along a predetermined path.

The anchoring flaps 52, 52A, 48 and 48A are folded downwardly and into flat face contacting relation with the inner surfaces of their associated side wall panels. This folding operation is accomplished without the simultaneous folding of the associated holding tabs and anchoring panels by virtue of the fact that the fold line between the anchoring flap such as 48 and the associated wall panel 20 and identified by the numeral 49 is spaced transversely inward by a slight distance from the fold line such for example as 46 between the anchoring panel 45 and wall panel 28 as is indicated by the letter "X" in FIG. 4. Thus when anchoring flap 48 is folded toward its ultimate position of flat face contacting relationship with the inner surface of its associated side wall panel 20, such folding causes a certain amount of fold of anchoring panel 45 along its fold line 46 but does not cause that panel to move into flat face contacting relationship with the inner surface of lap wall panel 28.

After the initiation of a folding operation of anchoring flap 48 and of the remaining anchoring flaps such as 52, 48A and 52A, the side wall panels 20 and 22 are folded downwardly along their associated fold lines 21 and 23. This operation is followed by the folding of lap wall panels 26 and 28 underneath the package. These folding operations cause the holding tabs 40–43 to assume positions astride the corners of the carrier as best shown in FIGS. 1 and 3.

In order to accommodate the folding operations just described, the anchoring panels such as 45 and 55 must necessarily swing out of the planes of their associated panels 28 and 26. Of course this folding of anchoring panels 45 and 55 is an upward direction. After the folding operation is complete, these anchoring panels such as 45 and 55 fold back into the

planes of their associated wall panels **28** and **26** which positions are clearly shown in FIG. **1** and constitute their normal positions.

From the above description, it is apparent that the holding tabs such as **40–43** are formed without fold lines formed therein and hence are mechanically strong and serve to enhance the security of the package. Of course the particular structure of the holding tabs wherein fold lines are not included is rendered foldable into set-up position by virtue of the fold lines such as **46** and **56** by which the anchoring panels **45** and **55** are adjoined to their associated wall panels according to a feature of the invention. Furthermore, the offset relationship of these fold lines with respect to fold lines **49** and **53** as designated by the letter "X" facilitates the proper sequence and degree of folding as described. In addition, the article engaging slits such as **50** and **51** provide article engaging edges **50A** and **57A** and hence enhance the security of the package according to this invention. The side edges of the blank as is apparent from FIG. **2** are virtually straight, thus contributing to economy in the use of material. For example, the end edges of top wall panel **1** are virtually aligned with the side edges of anchoring flaps such as **48** and **52**. Since the anchoring flaps are folded inwardly as indicated in FIG. **1**, the effect is to expose the packaged items partially along the end edges of the side wall panels while at the same time the tops and bottoms of the packaged items are effectively covered as by top wall panel **1** and by the anchoring panels **45** and **55**. For this reason hang-up of the bottom edges of the articles is prevented when the package is inserted, for example, into a corrugated container or into some other large container along with other similar packages.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. An article carrier comprising a pair of wall panels foldably joined together along adjacent edges and disposed in angular relation to each other, an anchoring flap foldably joined to one edge of one of said wall panels and having a part thereof disposed adjacent the fold line between said wall panels, an anchoring panel foldably joined to one edge of the other of said wall panels and having a part thereof disposed adjacent the fold line between said wall panels, said anchoring flap being folded into face to face contacting relation with said one wall panel and said anchoring panel being disposed in the plane of said other panel, and a holding tab foldably joined along angularly related fold lines to said parts of said anchoring flap and of said anchoring panel respectively and disposed in an article engaging and holding position astride the corner defined by said wall panels at one end of the carrier when said wall panels are folded into substantially normal relation to each other.

2. A carrier according to claim **1** wherein an article engaging slit is formed between said anchoring flap and said holding tab adjacent the end of the fold line therebetween which is remote from the fold line between said wall panels.

3. A carrier according to claim **1** wherein the transverse dimension of said one wall panel is less than the transverse dimension of said other wall panel and wherein adjacent ends of articles within the carrier are disposed in flat face contacting relation to the inner surface of said other wall panel and wherein the end edge of said anchoring panel is configured to conform generally with the configuration of a part of the end of an article.

4. A carrier according to claim **1** wherein the fold line between said anchoring flap and said one wall panel is transversely spaced from the fold line between said anchoring panel and said other wall panel.

5. A carrier according to claim **4** wherein the fold line between said anchoring flap and said one wall panel is spaced inwardly of the carrier relative to the fold line between said anchoring panel and said other wall panel.

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