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(54) **CARTON HANDLE**

KARTON MIT TRAGEGRIFF

POIGNEE DE CARTON D'EMBALLAGE

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Description

[0001] The present invention relates generally to paperboard cartons for use in packaging articles such as cans or bottles for beverages. More particularly, the invention relates to a handle for such cartons which is associated with stress-relieving severance lines.

[0002] Articles such as cans or bottles for beverages including soft drinks, beer, juices and the like are commonly sold in multiple quantities packaged in a paperboard carton. For the convenience of the consumer, the carton is often provided with a handle, which quite commonly includes as a primary feature one or two slots or other apertures formed in the carton. The user inserts the hand or fingers into one or both of the slots to lift the carton.

[0003] One example of handles is shown in EP 0 171 703 which shows a carton having a pair of handle panels connected together along their common upper edge and to upper panels of the carton. The handle includes a trapezoidal hand aperture with edges convergent towards the top of the carton.

[0004] Lifting a carton containing beverage cans or bottles introduces considerable stress into the paperboard from which the carton is formed. The region around the slot or slots especially tends to be subject to stress concentration. For this reason, to prevent tearing of the paperboard and failure of the carton, it is known to design carton handles with various stress-relieving/distributing arrangements.

[0005] Known arrangements have difficulty in eliminating minor cracks and tears from the handle slot area. Minor cracks or tears do not usually result in handle failure. However, consumers may see these as undesirable and not purchase the packages with such cracks or tears.

[0006] What is needed, therefore, is a carton having a carrying handle with an improved stress-relieving arrangement. Such a carton should eliminate or reduce tears or fractures and particularly those minor cracks and tears which detract from the carton appearance.

[0007] One aspect of the present invention provides a packaging carton comprising a handle panel hingedly connected to an upper panel of the carton, wherein the handle panel includes a substantially trapezoidal hand aperture with edges convergent towards the top of the carton characterised in that the aperture is dimensioned and that the convergent edges of the aperture are engaged by the outer fingers of the average user's hand thus distributing the dead load of the carton, when lifted, over a substantial area of the handle panel.

[0008] An optional feature of this aspect of the invention provides a carton wherein the upper and side edges of said aperture may each comprise a flap adapted to provide a surface to be in contact with the users hand.

[0009] A second aspect of the invention provides a carton blank comprising a handle panel hingedly connected to an upper panel of the blank, wherein the han-

dle panel includes a substantially trapezoidal aperture with edges convergent towards the top of the blank when it is folded to form a carton, characterised in that the convergent edges of the aperture are engaged by the outer fingers of the user's hand, thus distributing the dead load of said carton when lifted over a substantial area of the handle panel. Preferably the upper and side edges of said aperture may comprise a flap adapted to provide a surface to be in contact with the users hand.

[0010] The use of a handle according to either aspect of the invention may reduce the torsional effect on the handle caused by carrying the carton.

[0011] An embodiment of the invention will now be described by way of example only with reference to the accompanying drawings in which:

FIGURE 1 is a plan view of a carton blank forming a carton according to the invention; and
FIGURE 2 is a perspective view showing a central portion of the carton incorporating an upstanding handle.

[0012] Referring to the drawings, and in particular Figure 1 thereof, there comprises an elongate blank 10 formed from paperboard or like foldable sheet material comprising in series a base structure 12, first side panel 14, top panel 16, first handle panel 18, second handle panel 20, intermediate panel 22, second top panel 24, side panel 26 and second base structure 28, hingeably connected one to the next along fold lines 30, 32, 34, 36, 38, 40, 42 and 44 respectively.

[0013] The lower portions of the side walls 14, 26 and base panel forming the base structures 12, 28 are not described in any greater detail since they are not concerned with the present invention and are carton features well known in the art.

[0014] A series of two neck receiving apertures 46, 48 is struck partially from top panel 16, each aperture being shaped to provide a locking zone. Likewise, a series of two similarly spaced bottle neck receiving apertures 50, 52 are partially struck from top panel 24, but do not include locking zones.

[0015] Locking tabs 54, 56 are struck from intermediate panel 22 and are hinged to the lower end of intermediate panel 22 along hinge line 40 and include "T-shaped" locking heads which have locking edges.

[0016] Handle panels 18 and 20 are each formed with handle apertures 58, 60 which are substantially trapezoidal in shape. Apertures 58, 60 each include side edges 90, 94 which are convergent towards the top of the carton when erected, as shown in Figure 2. Handle cushioning flaps 62, 64 and 66 are struck from side edges 90, 94 and upper edge 92 respectively of handle panel 18 being hingeably connected thereto by fold lines 68, 70, 72 respectively. Cut lines 63, 65 extend from the intersections of side edges 90, 94 and upper edge 92 to separate flaps 62, 64 and 66. Likewise, hand cushioning flaps 74, 76, 78 are struck from side edges 90, 94 and

upper edge 92 respectively of handle panel 20 being hingeably connected thereto by fold lines 80, 82, 84. Cut lines 67, 69 extend from the intersections of side edges 90, 94 and upper edge 92 to separate flaps 74, 76 and 78.

[0017] The construction of a completed carrier of the invention requires a series of sequential folding and gluing operations. The folding process is not limited to that described below and can be altered according to particular manufacturing requirements.

[0018] Thus, the blank 10 is adapted to be wrapped about a group of four bottles arranged in two rows of two bottles each so that the neck portions of the bottles protrude through the neck receiving apertures 46, 48, 50, 52 of the handle panels and an upstanding handle H is formed, shown in Figure 2, between the rows of bottles.

[0019] In order to apply the carton blank 10 to the bottles, the handle panels 18, 20 are erected into a juxtaposition out of the plane of the blank so that the handle apertures more or less are brought into registry with one another. In particular, locking tabs 54, 56 are folded about fold line 40 through 180 degrees and into a face to face relationship with top panel 24. Handle panels 18 and 20 are folded about fold line 36 and brought into a face to face to relationship with each other and may be connected together by glue or other means known in the art. Thus, locking tabs 54, 56 are aligned with apertures 46 and 48 respectively and are then interengaged with the apertures such that the heads of the locking tabs appear in respective ones of apertures.

[0020] Top panels 16 and 26 are folded out of alignment with the handle structure H about fold lines 34 and 40 respectively. The blank is then applied to a group of bottles to be packaged so that handle H, shown in Figure 2, formed from handle panels 18, 20 is disposed between the rows of bottles, which in this embodiment, is off set from a plane disposed mid-way between said rows of apertures.

[0021] The carton blank is then applied over the bottle necks whereby the heads of the locking tabs 54, 56 are outwardly displaced and disposed between handle panel 18 and the neck of an adjacent bottle. Thus, handle panels 18 and 24 are tied together by the locking tabs so that they are maintained in virtually upright attitude for use.

[0022] The carton is completed by causing side walls 14, 26 to be folded downward and the base structures 12 and 28 to be secured in an overlapping relationship beneath the base of the bottles, by means known in the art.

[0023] In use, the handle structure H includes the substantially trapezoidal aperture which is adapted to receive part of a users hand U. The aperture A, shown in Figure 2 includes side edges 90, 94, which are convergent towards the top of the carton whereby components of the force F, exerted when the handle panel is in use, are transmitted to the side edges 90, 94. Preferably, the dead load of the carton is thus distributed over a sub-

stantial area of said handle panel when lifted. The handle structure H of the invention is able to reduce the torsional effect, for example twisting, on the handle when in use, thereby improving the handle performance. The likelihood of tearing the paperboard is reduced.

[0024] The handle structure H is not limited to a trapezoidal shaped aperture A. Indeed, alternative profiles of aperture can also be considered to transmit components of force effectively, for example when the aperture comprises one converging side edge. The profile of the aperture can be altered according to particular requirements of the user.

[0025] A hand cushioning structure is provided between the registering handle apertures 58, 60 by flaps 62, 64, 66 and 72, 74, 76 which are brought into overlapping relationship with the two handle panels 18, 20.

[0026] The present inventions preferred embodiments relate to an article carrier which is shaped to provide satisfactory strength to hold the bottles securely but with a degree of flexibility so that the load transferred to the handle is absorbed by the carrier. The shape of the blank minimises the amount of paperboard required. The carrier can be applied to an array of bottles by hand or automatic machinery. It is anticipated that the invention can be applied to a variety of carriers and not limited to those of the type hereinbefore described.

Claims

1. A packaging carton comprising a handle panel (18, 20) hingedly connected to an upper panel (16, 24) of the carton, wherein the handle panel includes a substantially trapezoidal hand aperture (58, 60) with edges convergent towards the top of the carton **characterised in that** the aperture (58, 60) is dimensioned such that the convergent edges of the aperture are engaged by the outer fingers of the average user's hand thus distributing the dead load of the carton, when lifted, over a substantial area of the handle panel.
2. A carton according to claim 1 wherein the upper and side edges of said aperture each comprise a flap (62, 64, 66, 74, 76, 78) adapted to provide a surface to be in contact with the users hand.
3. A carton blank comprising a handle panel (18, 20) hingedly connected to an upper panel (16, 24) of the blank, wherein the handle panel includes a substantially trapezoidal aperture (58, 60) with edges convergent towards the top of the blank when it is folded to form a carton, **characterised in that** the convergent edges of the aperture are engaged by the outer fingers of the user's hand, thus distributing the dead load of said carton when lifted over a substantial area of the handle panel.

4. A blank according to claim 3 wherein the upper and side edges of said aperture each comprise a flap (62, 64, 66, 74, 76, 78) adapted to provide a surface to be in contact with the users hand.

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Patentansprüche

1. Verpackungsschachtel, umfassend eine Griffwandfläche (18, 20), die gelenkig mit einer oberen Wandfläche (16, 24) der Schachtel verbunden ist, wobei die Griffwandfläche eine im Wesentlichen trapezförmige Handöffnung (58, 60) einschließt, mit konvergierenden Kanten in Richtung des Deckels der Schachtel, **dadurch gekennzeichnet, dass** die Öffnung (58, 60) derart dimensioniert ist, dass die konvergierenden Kanten der Öffnung von den außen liegenden Fingern der Hand eines durchschnittlichen Benutzers in Eingriff genommen werden und somit das Eigengewicht der angehobenen Schachtel über einen bedeutenden Bereich der Griffwandfläche verteilt wird.
2. Schachtel gemäß Anspruch 1, wobei die Ober- und Seitenkanten der Öffnung jeweils eine Klappe (62, 64, 66, 74, 76, 78) umfassen, die angepasst ist, eine Fläche bereitzustellen, um mit der Hand des Benutzers in Berührung zu sein.
3. Schachtelzuschnitt, umfassend eine Griffwandfläche (18, 20), die gelenkig mit einer oberen Wandfläche (16, 24) des Zuschnitts verbunden ist, wobei die Griffwandfläche eine im Wesentlichen trapezförmige Öffnung (58, 60) einschließt, mit konvergierenden Kanten in Richtung des Deckels des Zuschnitts, wenn er gefaltet wird, um eine Schachtel auszubilden, **dadurch gekennzeichnet, dass** die konvergierenden Kanten der Öffnung von den außen liegenden Fingern der Hand eines Benutzers in Eingriff genommen werden und somit das Eigengewicht der angehobenen Schachtel über einen bedeutenden Bereich der Griffwandfläche verteilt wird.
4. Zuschnitt gemäß Anspruch 3, wobei die Ober- und Seitenkanten der Öffnung jeweils eine Klappe (62, 64, 66, 74, 76, 78) umfassen, die angepasst ist, eine Fläche bereitzustellen, um mit der Hand des Benutzers in Berührung zu sein.

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le haut du carton, **caractérisé en ce que** les dimensions de l'ouverture (58, 60) sont telles que les bords convergents de l'ouverture sont au contact des doigts extérieurs de la main d'un utilisateur moyen, en répartissant ainsi le poids propre du carton d'emballage, lorsqu'on le soulève, sur une grande surface du panneau de poignée.

2. Carton d'emballage selon la revendication 1, dans lequel les bords supérieur et latéraux de ladite ouverture comportent chacun un rabat (62, 64, 66, 74, 76, 78) conçu pour présenter une surface destinée à être au contact de la main de l'utilisateur.
3. Ebauche de carton d'emballage comprenant un panneau (18, 20) de poignée articulé avec un panneau supérieur (16, 24) de l'ébauche, le panneau de poignée comportant une ouverture sensiblement trapézoïdale (58, 60) dont les bords convergent vers le haut de l'ébauche lorsqu'on le plie pour former un carton d'emballage, **caractérisée en ce que** les bords convergents de l'ouverture sont au contact des doigts extérieurs de la main de l'utilisateur, en répartissant ainsi le poids propre dudit carton d'emballage, lorsqu'on le soulève, sur une grande surface du panneau de poignée.
4. Ebauche selon la revendication 3, dans laquelle les bords supérieur et latéraux de ladite ouverture comportent chacun un rabat (62, 64, 66, 74, 76, 78) conçu pour présenter une surface destinée à être au contact de la main de l'utilisateur.

Revendications

1. Carton comprenant un panneau (18, 20) de poignée articulé avec un panneau supérieur (16, 24) du carton d'emballage, le panneau de poignée comportant, pour la main, une ouverture sensiblement trapézoïdale (58, 60) dont les bords convergent vers

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FIG. 1

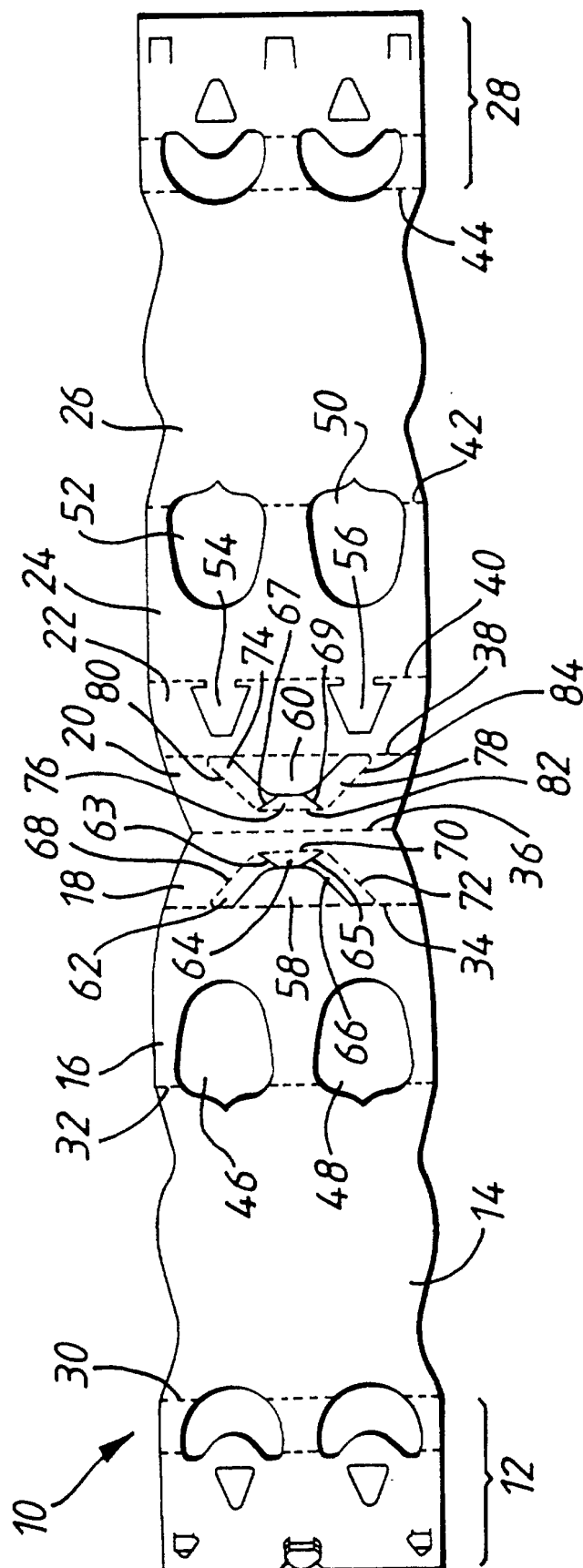


FIG. 2

