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

(11) EP 0 503 821 B1

(12) EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention of the grant of the patent:
17.01.1996 Bulletin 1996/03

(51) Int. Cl.[6]: **B65D 71/00**

(21) Application number: **92301813.9**

(22) Date of filing: **03.03.1992**

(54) Package and carrier stock with integral handles

Trägerfolien-Sortiment mit integrierten Handgriffen

Ensemble d'emballage et support avec poignées intégrées

(84) Designated Contracting States:
AT BE CH DE DK ES FR GB GR IT LI LU NL PT SE

(30) Priority: **14.03.1991 US 669491**

(43) Date of publication of application:
16.09.1992 Bulletin 1992/38

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EP 0 503 821 B1

Printed by Rank Xerox (UK) Business Services
2.9.2/3.4

Description

This invention pertains to carrier stock for machine application to substantially identical cans or other containers. This invention pertains, more particularly, to carrier stock that is severable into individual carriers with separate apertures to receive the individual containers, with integral handles, and with nubs to counter tendencies of certain band segments of the carriers to neck down or to break.

Typically, carrier stock with individual container-receiving apertures for machine application to substantially identical containers is formed, as by die-cutting, from a single sheet of resilient polymeric material, such as low density polyethylene. Typically, such stock is severable transversely, along perforated lines dividing certain band segments into half segments, so as to form individual carriers with separate apertures to receive the individual containers.

As disclosed in EP-A-0456360 such stock can be advantageously provided with an integral handle along one lateral edge of each carrier. When a package comprising a number of individual containers (e.g., six, eight, or twelve containers) and such a carrier having such a handle is carried by the handle, certain band segments of the carrier tend to neck down or to break, namely the half segments where the carrier was separated from the preceding and succeeding carriers of the same stock. A perforated line produces stress concentrations, which are exacerbated if a transversely moving plow or other force-transmitting means is forced between the individual carriers. Such a means tends to produce small nicks or width reductions of the half segments.

As disclosed in EP-A-0456360 tendencies of certain half segments to neck down or to break can be effectively countered by nubs formed along aperture-defining edges of those half segments, in carrier stock having integral handles joined to other band segments in a manner disclosed therein. This invention stems from an appreciation that such tendencies can be effectively countered by such nubs even if the integral handles are not joined to other band segments in the manner disclosed therein.

According to this invention a carrier stock for machine application to substantially identical containers is formed from a single sheet of resilient polymeric material and being severable to form individual carriers with separate apertures to receive the individual containers and with integral handles, said stock being formed for each individual carrier with

(a) integrally joined band segments defining the separate apertures and including outer segments that extend generally in a longitudinal direction along a first edge of the carrier when the stock is unstressed, outer segments that extend generally in a longitudinal direction along a second edge of the carrier when the stock is unstressed, and cross segments that extend generally in a transverse direction when the stock is unstressed, the first edge being opposite to the second edge, and

(b) an integral handle having two ends, which are joined respectively to outer segments along the first edge,

wherein selected ones of the cross segments have weakened lines extending generally in a transverse direction when said stock is unstressed and dividing the segments having said lines into half segments, said lines facilitating severance of said stock to form the individual carriers, and wherein each half segment joined to one of the outer segments along the first edge has an aperture-defining edge configured so as to define a nub constituting means for countering tendencies of such half segment when stressed to neck down or to break, and wherein each of the ends of the integral handle is joined, at a node, to two of the outer segments along the first edge and to one of the cross segments other than the cross segments divided into half segments.

It is preferred that each half segment joined to one of the outer segments along the second edge is configured to define a similar nub.

This invention also embraces packages formed using carriers derived from such stock.

A particular embodiment of a carrier and a package in accordance with this invention will now be described with reference to the accompanying drawings; in which:-

Figure 1 is a perspective view of a package comprising eight substantially identical containers and a carrier, which is severed from carrier stock according to this invention.

Figure 2, on an intermediate scale, is a plan view of carrier stock according to a presently preferred embodiment of this invention.

Figure 3, on a larger scale, is a fragmentary detail showing band segments defining a container-receiving aperture of such stock.

As shown in Figure 1 through 3, carrier stock 10 for machine application to substantially identical containers 12 constitutes a presently preferred embodiment of this invention. Such stock 10 is formed with separate apertures 14 to receive the individual container 12. The carrier stock 10 is severable, along transverse lines to be later described, to form individual carriers 20 that are substantially identical.

As shown in Figure 1, the containers 12 are beverage cans of a type used commonly for beer, soft drinks, and other beverages. Also, each container 12 has a chime 16 at one end, and a lid which is provided with a pull tab 18. This invention is not limited, however, to usage with such cans but is useful with cans, bottles, and other containers of various types.

In Figure 1, a package is shown, which comprises eight such containers 12 and one such carrier 20, as severed from such stock 10. One such carrier 20 is shown fully in Figure 2, which also shows fragmentary portions

of the next carrier 20. Each carrier 20 is shown in an unstressed condition in Figure 2.

The carrier stock 10 is formed in an indeterminate length, as by die-cutting, from a single sheet of resilient polymeric material. A preferred material is low density polyethylene. A preferred thickness for such stock 10 in an unstressed condition, if low density polyethylene is used, is about 0.36mm (14 mils).

The carrier stock 10 is formed, for each individual carrier 20, with integrally joined band segments defining eight separate apertures 14. As shown in Figure 2, such apertures 14 are in a rectangular array with longitudinal rows and transverse ranks, namely two longitudinal rows and four transverse ranks for each individual carrier 20.

The carrier stock 10 is applied to the side walls of the respective containers 12 away from the chime 16 of each container 12. The carrier stock 10 may be applied as the carrier stock disclosed in Klygis US-A-4,018,331 is applied. A suitable machine for applying such stock 10 is disclosed in Benno et al. US-A-3,959,949.

An alternate machine, which is adaptable for applying the carrier stock 10 is disclosed in EP-A-0456357.

The band segments defining the separate apertures 14 of each carrier 20 include outer segments that extend generally in a longitudinal direction when the carrier stock 10 is unstressed, namely two outer segments 22 extending along a first edge of such carrier 20 to its respective ends, two outer segments 24 extending along the first edge of such carrier 20 between the outer serpents 22, and four outer segments 26 extending along a second edge of such carrier 20. Such band segments include four inner segments 28 that extend generally in a longitudinal direction when such stock 10 is unstressed. Such band segments include cross segments that extend generally in a transverse direction when such stock 10 is unstressed, namely two cross segments 30 at each of the respective ends of such carrier 20 and three pairs of cross segments 32 between the cross segments 30. Such band segments include diagonal segments 34, each of which connects one of the inner segments 28 and one of the cross segments 30, 32, and which define generally diamond-shaped apertures 36 in the carrier stock 10.

Also, along the first edge of each carrier 20, the carrier stock is formed with an integral handle 40 having two outer ends 42 and a middle leg 46. Each of the outer ends 42 is joined, at a node 48, to one of the outer segments 22, one of the outer segments 24, and one of the cross segments 32. The middle leg 46 is joined, at a node 50, to two of the outer segments 24 and one of the cross segments 32. The middle leg 46 may be optionally provided with a generally longitudinal slit (not shown) so as to enable the middle leg 46 to be easily broken by a user manipulating the integral handle 40.

As shown in Figure 2, the inner segments 28 have generally longitudinal slits 52, and the cross segments 32 have generally transverse slits 54. The slits 52, 54, facilitate folding of the inner segments 28 and the cross segments 32 when the carrier stock 10 is applied to the individual containers 12.

The carrier stock 10 is formed with tear-open tabs 56 conforming essentially to the tear-open tabs disclosed in EP-A-0461748. Each tab 56 extends into one of the apertures 14 from one of the outer segments 22, 24, 26. Each tab 56 and the outer segment associated with such tab 56 are slitted in a manner disclosed in EP-A-0461748.

In the carrier stock 10, the cross segments 30 at the respective ends of each carrier 20 have weakened, perforated lines 60, which extend generally in a transverse direction when such stock 10 is unstressed, and which divide such segments 30 into half segments 62. The perforated lines 60 facilitate severance of the carrier stock 10 to form the individual carriers 20. Such stock 10 can be manually broken or otherwise severed along such lines 60. Each half segment 62 is partly bounded by one such line 60, which produces stress concentrations in such half segment 62.

The carrier stock 10 can be transversely severed by a transversely mowing plow (not shown) or other force-transmitting means forced between the individual carriers 20. Such a means tends to produce small nicks or width reductions D, one of which is shown in Figure 3, or other flaws exacerbating stress concentrations in the half segments 62.

As exemplified in Figure 3, each half segment 62 has an aperture-defining edge 64 with a characteristic shape contemplated by this invention. Specifically, such edge 64 is configured with two concave sections 66 and one convex section 68 between the concave sections 66. Such edge 64 is configured to provide smooth transitions between the concave sections 66 and the convex section 68.

The convex section 68 defines a nub 70, which effectively functions as means for countering tendencies of such half segment 62 when stressed to neck down or to break because of stress concentrations produced by the perforated line 60 that partly bounds such half segment 62. The nub 70 provides a localized region of augmented cross section with smooth transitions to adjacent regions of such half segment 62.

Claims

1. Carrier stock (10) for machine application to substantially identical containers, said stock being formed from a single sheet of resilient polymeric material and being severable to form individual carriers with separate apertures (14) to receive the individual containers and with integral handles (40), said stock being formed for each individual carrier with

   (a) integrally joined band segments defining the separate apertures (14) and including outer segments (22) that extend generally in a longitudinal direction along a first edge of the carrier when the stock is unstressed, outer segments

that extend generally in a longitudinal direction along a second edge of the carrier when the stock is unstressed, and cross segments (30,32) that extend generally in a transverse direction when the stock is unstressed, the first edge being opposite to the second edge, and

(b) an integral handle (40) having two ends, which are joined respectively to outer segments along the first edge,

wherein selected ones of the cross segments (30) have weakened lines (60) extending generally in a transverse direction when said stock is unstressed and dividing the segments (30) having said lines into half segments (62), said lines (60) facilitating severance of said stock (10) to form the individual carriers (20), and wherein each half segment joined to one of the outer segments (22) along the first edge has an aperture-defining edge (64) configured so as to define a nub (70) constituting means for countering tendencies of such half segment (62) when stressed to neck down or to break, and wherein each of the two outer ends (42) of the integral handle (40) is joined, at a node (48), to two of the outer segments (22, 24) along the first edge and to one of the cross segments (32) other than the cross segments (30) divided into half segments (62).

2. A carrier stock according to claim 1, wherein each half segment (62) joined to one of the outer segments along the second edge has an aperture-defining edge (64) configured so as to define a similar nub (70).

3. A carrier stock according to claim 1 or 2, wherein the aperture-defining edge (64) of each half segment (62) joined to one of the outer segments (22) along the first edge or second edge is configured with two concave sections (66) and one convex section (68) to define the nub (70).

4. A package comprising a carrier (20) formed of stock in accordance with any one of the preceding claims with a container (12) held in each aperture (14) of the carrier (20).

Patentansprüche

1. Trägervorrat (10) zur maschinellen Anbringung an im wesentlichen identischen Behältern, wobei der Trägervorrat aus einer einzigen Folie elastischen polymeren Materials geformt und teilbar ist, um einzelne Träger mit separaten Öffnungen (14) zum Aufnehmen der einzelnen Behälter und mit integrierten Handgriffen (40) zu bilden, wobei der Trägervorrat für jeden einzelnen Träger ausgebildet ist mit

(a) integral verbundenen Bandsegmenten, die die separaten Öffnungen (14) begrenzen und äußere Segmente (22), die sich allgemein in einer Längsrichtung entlang einem ersten Rand des Trägers erstrecken, wenn der Trägervorrat unbelastet ist, äußere Segmente, die sich allgemein in einer Längsrichtung entlang einem zweiten Rand des Trägers erstrecken, wenn der Trägervorrat unbelastet ist, und Quersegmente (30, 32) einschließen, die sich allgemein in einer Querrichtung erstrecken, wenn der Trägervorrat unbelastet ist, wobei der erste Rand dem zweiten Rand gegenüberliegt, und mit

(b) einem integrierten Handgriff (40) mit zwei Enden, die jeweils mit äußeren Segmenten entlang dem ersten Rand verbunden sind,

bei dem ausgewählte Quersegmente (30) Schwächungslinien (60) aufweisen, die sich allgemein in einer Querrichtung erstrecken, wenn der Trägervorrat unbelastet ist, und die die Linien aufweisenden Segmente (30) in Halbsegmente (62) teilen, wobei die Linien (60) die Teilung des Trägervorrats (10) zur Bildung der einzelnen Träger (20) erleichtern, und bei dem jedes Halbsegment, das mit einem der äußeren Segmente (22) entlang dem ersten Rand verbunden ist, einen öffnungsbegrenzenden Rand (64) hat, der so gestaltet ist, daß er eine Wölbung (70) begrenzt, die ein Mittel darstellt, Bestrebungen des Halbsegments (62) entgegenzuwirken, bei Belastung sich nach unten zu biegen oder zu reißen, und bei dem jedes der beiden äußeren Enden (42) des integrierten Handgriffs (40) an einem Knotenpunkt (48) mit zweien der äußeren Segmente (22, 24) entlang dem ersten Rand und mit einem der Quersegmente (32) verbunden ist, die von den in Halbsegmente (62) geteilten Quersegmenten (30) verschieden sind.

2. Trägervorrat nach Anspruch 1, bei dem jedes mit einem der äußeren Segmente entlang dem zweiten Rand verbundene Halbsegment (62) einen öffnungsbegrenzenden Rand (64) hat, der so gestaltet ist, daß er eine ähnliche Wölbung (70) begrenzt.

3. Trägervorrat gemäß Anspruch 1 oder 2, bei dem der öffnungsbegrenzende Rand (64) jedes mit einem der äußeren Segmente (22) entlang dem ersten oder dem zweiten Rand verbundene Halbsegment (62) mit zwei konkaven Abschnitten (66) und einem konvexen Abschnitt (68) ausgebildet ist, um die Wölbung (70) zu begrenzen.

4. Packung, die einen Träger (20) aufweist, der aus Trägervorrat gemäß einem der vorhergehenden Ansprüche gebildet ist, wobei ein Behälter (12) in jeder Öffnung (14) des Trägers (20) gehalten ist.

Revendications

1. Bande (10) d'alimentation en supports pour une pose à la machine sur des récipients sensiblement identiques, ladite bande d'alimentation étant formée d'une seule feuille de matière polymérique élastique et pouvant être sectionnée pour former plusieurs supports individuels présentant des ouvertures séparées (14) destinées à recevoir les récipients individuels et des poignées (40) réalisées d'une seule pièce avec les supports, ladite bande d'alimentation étant formée de façon à comporter, pour chaque support individuel,

   (a) des segments de bride reliés de façon intégrée, définissant les ouvertures séparées (14) et comprenant des segments extérieurs (22) qui s'étendent globalement dans une direction longitudinale le long d'un premier bord du support lorsque la bande d'alimentation n'est soumise à aucune contrainte, des segments extérieurs qui s'étendent globalement dans une direction longitudinale le long d'un second bord du support lorsque la bande d'alimentation n'est soumise à aucune contrainte, et des segments transversaux (30, 32) qui s'étendent globalement dans une direction transversale lorsque la bande d'alimentation n'est soumise à aucune contrainte, le premier bord étant opposé au second bord, et
   (b) une poignée intégrée (40) ayant deux extrémités qui sont reliées, respectivement, à des segments extérieurs le long du premier bord,

   dans laquelle certains, choisis, des segments transversaux (30) ont des lignes d'affaiblissement (60) s'étendant globalement dans une direction transversale lorsque ladite bande d'alimentation n'est soumise à aucune contrainte et divisant les segments (30) ayant lesdites lignes en demi-segments (62), lesdites lignes (60) facilitant le sectionnement de ladite bande d'alimentation (10) pour former les supports individuels (20), et dans laquelle chaque demi-segment relié à l'un des segments extérieurs (22) le long du premier bord présente un bord (64) définissant une ouverture, configuré de façon à définir une protubérance (70) constituant un moyen pour s'opposer à des tendances de ce demi-segment (62), lorsqu'il est soumis à une contrainte, à rétrécir ou se rompre, et dans laquelle chacune des deux extrémités extérieures (42) de la poignée intégrée (40) est reliée, par un noeud (48), à deux des segments extérieurs (22, 24) le long du premier bord et à l'un des segments transversaux (32) autre que les segments transversaux (30) divisés en demi-segments (62).

2. Bande d'alimentation en supports selon la revendication 1, dans laquelle chaque demi-segment (62) relié à l'un des segments extérieurs le long du second bord présente un bord (64) définissant une ouverture, configuré de façon à définir une protubérance similaire (70).

3. Bande d'alimentation en supports selon la revendication 1 ou 2, dans laquelle le bord (64) définissant une ouverture de chaque demi-segment (62) relié à l'un des segments extérieurs (22) le long du premier bord ou du second bord est configuré de façon à présenter deux sections concaves (66) et une section convexe (68) pour définir la protubérance (70).

4. Emballage comportant un support (20) formé d'une bande d'alimentation selon l'une quelconque des revendications précédentes, avec un récipient (12) maintenu dans chaque ouverture (14) du support (20).

FIG. 1

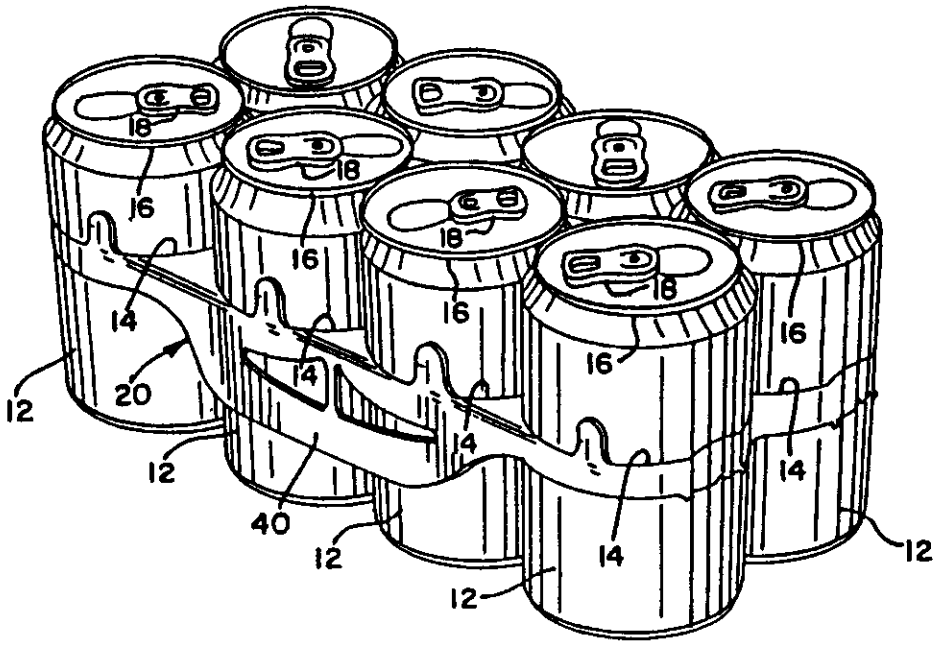


FIG. 3

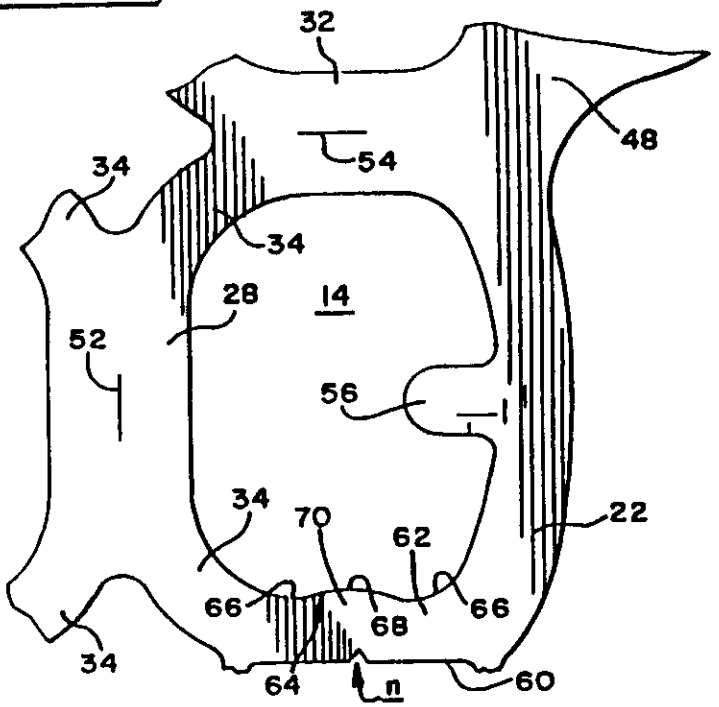
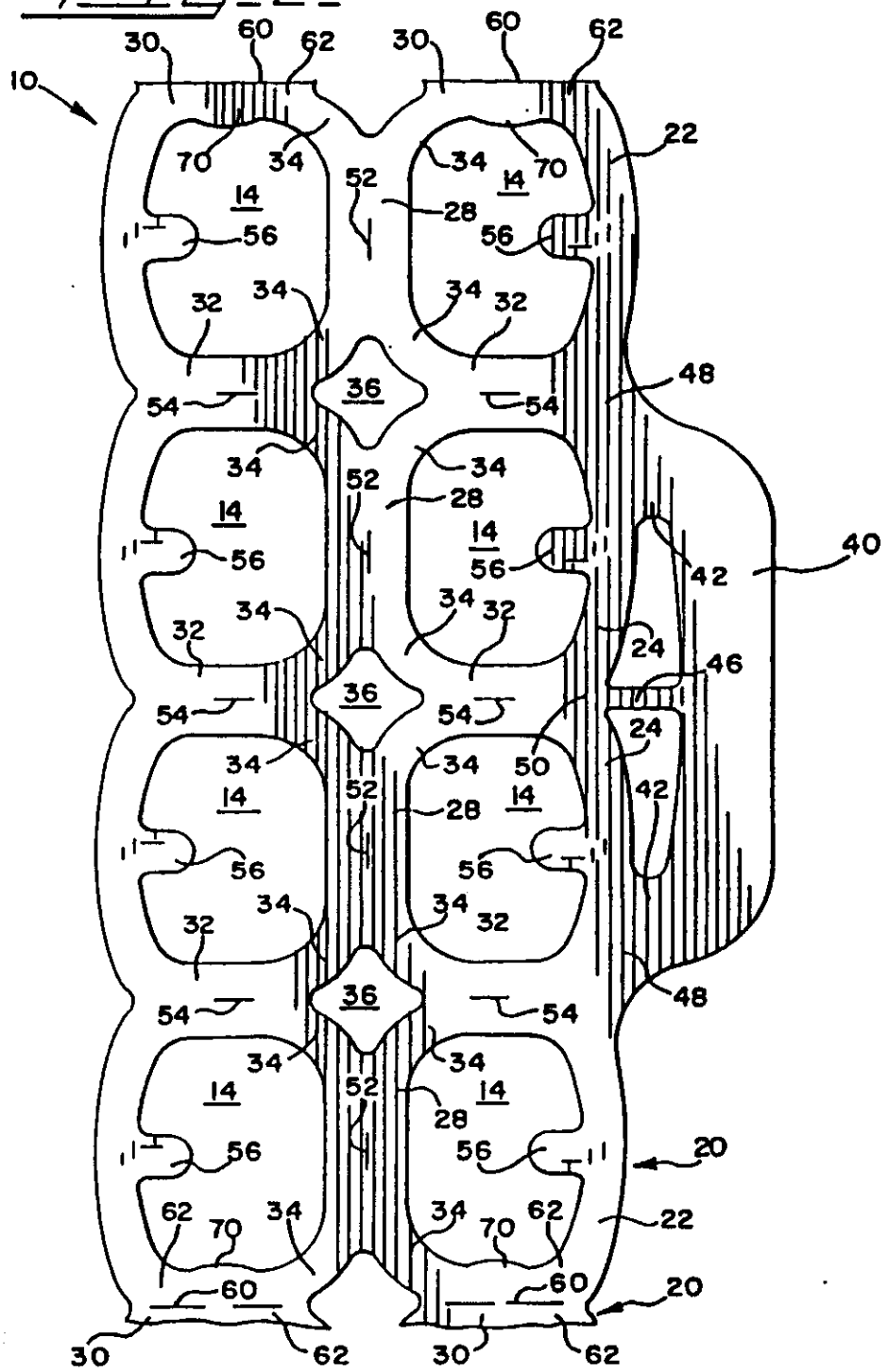


FIG. 2



REGISTER ENTRY FOR EP0503821

European Application No EP92301813.9 filing date 03.03.1992

Priority claimed:
14.03.1991 in United States of America - doc: 669491

Designated States BE CH DE DK ES FR GB GR IT LI LU NL PT SE AT

Title PACKAGE AND CARRIER STOCK WITH INTEGRAL HANDLES.

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Classified to
B65D

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Publication No EP0503821 dated 16.09.1992
Publication in English

Examination requested 02.08.1993

Patent Granted with effect from 17.01.1996 (Section 25(1)) with title PACKAGE AND CARRIER STOCK WITH INTEGRAL HANDLES

07.01.1993 EPO: Search report published on 03.02.1993
Entry Type 25.11 Staff ID. RD06 Auth ID. EPT

15.12.1995 Notification from EPO of change of EPO Representative details from
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Entry Type 25.14 Staff ID. RD06 Auth ID. EPT

**** END OF REGISTER ENTRY ****

RENEWAL DETAILS

PUBLICATION NUMBER EP0503821

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DATE FILED 03.03.1992

DATE GRANTED 17.01.1996

DATE NEXT RENEWAL DUE 17.04.1996

DATE NOT IN FORCE

DATE OF LAST RENEWAL

YEAR OF LAST RENEWAL 00

STATUS PATENT IN FORCE

**** END OF REPORT ****