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(54) Exterior package for packaging containers

(57) An exterior package for packaging containers, the exterior package (1) have wall sections (4) which wholly or partly surround a number of packaging containers, and also having an upper portion (9). Packaging containers (15) of the type which are provided with projecting opening arrangements (14) are protected by the exterior package (1) on handling and storage in that its upper portion (9) has upper and lower planes (19, 20) between which the opening arrangements (14) are located, and also support portions (17) of which at least two are disposed in spaced apart relationship in order to form support surfaces (21) located in the upper plane

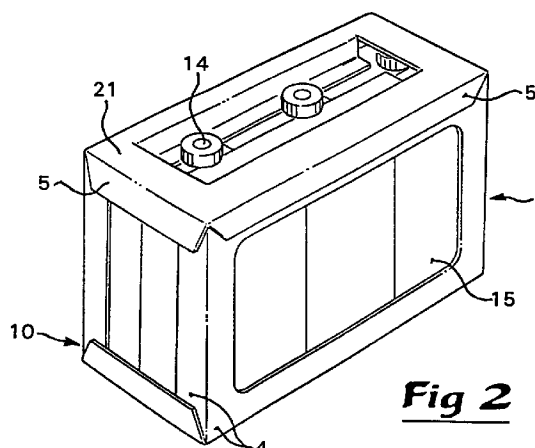


Fig 2

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Description

TECHNICAL FIELD

The present invention relates to an exterior package for packaging containers which are provided with projecting opening arrangements, the exterior package having wall sections which wholly or partly surround a number of packaging containers, and also having an upper portion.

BACKGROUND ART

Consumer packages for, for example liquid foods such as milk or juice are nowadays generally manufactured from laminated, flexible paper/plastic material which, by folding and thermosealing, is given the desired, for example parallelepipedic configuration. The packaging containers are wholly or partly filled with the desired, preferably liquid contents, and are also provided with some type of opening arrangement. Hitherto, the commonest practice has been to provide the packaging containers with opening arrangements in the form of tear-off sections, for example parts of the corner of the packaging container separated off by perforations, or flexible plastic or foil strips. However, in recent times, it has become generally more common to provide this per se known type of parallelepipedic packaging container with applied opening arrangements which are manufactured, for example, by the injection moulding of thermoplastic material and provided with a resealable portion, for example a pressure closure device or a screw cap. In particular in pouring spouts which are provided with a screw cap, the opening arrangement forms a manifest projection from the otherwise substantially planar top surface of the packaging container. This creates problems when the packaging containers, in a per se known manner, are placed in exterior packaging or so-called multipacks (for example conventional, shrink-film wrapped cardboard trays) which are intended to protect and hold together a group of packaging containers and also to facilitate handling and stacking of the packaging containers. Since a typical tray carrying, for example one litre packages, accommodates 3x6 packaging containers, this will have a weight of approximately 18 kg. and, on stacking of a large number of filled trays on one another, the loading on the opening arrangements in the lowermost tray will, as a result, be considerable in the extreme, which inevitably leads to damage to the opening arrangements and/or the packaging containers themselves. One possibility of avoiding this is to utilise specifically designed interlay panels which have recesses for the opening arrangements so that the load is distributed over the top surfaces of the packaging containers. Such separate interlay panels are, however, unwieldy and costly to use, for which reason this solution has not gained any major practical application. Another possibility of reducing the loading

is to minimise the height of the individual opening arrangements, which may possibly be feasible in opening arrangements of the type which includes relatively flat lids of the snap-on type, but which is difficult to realise when the opening arrangement is of the screw cap type.

Also in other types of group or multipacks, i.e. multipacks which not only comprise a tray and shrink-film wrapped around both tray and packaging containers, but also includes side walls and a top portion, the problem caused by the projecting opening arrangement remains unsolved. The reason for this is that, in this type of multipack, the distance between the bottom surface and the top portion of the multipack is determined by the height of the packaging containers, with the result that the packaging container with projecting opening arrangement will not have room in the standard type of group- or multipack. If the height of the multipack is increased in order to make for placing of packaging containers provided with projecting opening arrangements in the multipack, the entire weight - when the filled multipacks are stacked - must be taken up by the vertical sides of the multipacks, since the support from the remaining sides of the packaging containers disappears. Such loading will lead to deformation of the sides of the multipack and will, as a result, be transmitted to a very high degree to the projecting opening arrangements abutting against the upper wall of the multipack, the opening arrangements being in such instance pressed down and damaged or themselves causing damage to the individual packaging containers.

No ready solution to the above-outlined problem has as yet been revealed, and there is thus a general need in the art to realise an exterior package or multipack which is particularly designed to make for the packing of packaging containers provided with projecting opening arrangements, and also for the stacking of filled multipacks in such a manner that the loading is distributed over as large a surface area as possible and damage to the opening arrangements and/or the packaging containers is avoided.

OBJECTS OF THE INVENTION

One object of the present invention is to realise an exterior package for packaging containers with projecting opening arrangements, the exterior package being of a design and construction which is particularly adapted to make for the protective packing of packaging containers which are provided with projecting opening arrangements.

A further object of the present invention is to realise an exterior package which displays an upper portion which is designed to accommodate the height of the opening arrangements and to distribute the compression loading as uniformly as possible over the entire area of the packed packaging containers.

Yet a further object of the present invention is to

realise an exterior package for packaging containers provided with projecting opening arrangements, the exterior package including supporting and reinforcing portions for absorbing loading on stacking of even a very large number of exterior packages filled with packaging containers.

Still a further object of the present invention is to realise an exterior package whose material is shaped for the formation of support portion displaying considerable resistance to flexural and buckling stresses.

Yet a further object of the present invention is to realise an exterior package which cooperates with the packed packaging containers in order together to permit extreme loading and avoid damage.

Still a further object of the present invention is to realise an exterior package which, in an optimum manner, at low cost and with simple design, protects the packed packages and their contents from handling damage during transport and storage.

SOLUTION

The above and other objects have been attained according to the present invention in that an exterior package of the type mentioned by way of introduction has been given the characterizing feature that the upper portion includes upper and lower planes between which the opening arrangements are located, and also support portions, at least two of these being disposed in spaced apart relationship from one another in order to form support surfaces located in the upper plane.

Preferred embodiments of the exterior package according to the present invention have further been given the characterizing features as set forth in the appended subclaims.

ADVANTAGES

By providing the exterior package, preferably manufactured from corrugated board, with support portions which are distributed over the area of the upper portion and preferably form a frame extending around the upper portion, the opening arrangements are relieved of loading so that a large number of filled multipacks or exterior packages may be stacked on one another without the risk of damage to the opening arrangements and/or the packaging containers themselves. Such a design, with a rigidifying beam construction creates a particularly resistant multipack, and the cooperation - which is obtained as a result of the construction of the exterior package - between the opening arrangements/packaging containers and the upper portion of the exterior package guarantees a stable unit which is eminently suitable for handling and stacking and is extremely durable and resistant to damage.

BRIEF DESCRIPTION OF THE ACCOMPANYING DRAWINGS

One preferred embodiment of the exterior package according to the present invention will now be described in greater detail hereinbelow, with particular reference to the accompanying Drawings which show only those details indispensable to an understanding of the present invention. In the accompanying Drawings:

Fig. 1 shows a blank for an exterior package according to the present invention in the flat-laid state;

Fig. 2 shows an exterior package according to the present invention in perspective, filled with packaging containers;

Fig. 3 is a section through the upper portion of an exterior package according to Fig. 2;

Fig. 4 shows, in perspective, partly in section and also on a larger scale, a part of the exterior package of Fig. 2; and

Fig. 5 shows in perspective how the exterior package according to the present invention may be provided with a handle for convenient handling.

DESCRIPTION OF PREFERRED EMBODIMENT

The exterior package or multipack according to the present invention is intended to hold together and protect, during transport and handling, a group of preferably parallelepipedic packaging containers of per se known type, for example Tetra Brik® packaging containers for milk or juice. On distribution of this or other types of single-use disposable packaging containers, use is made of exterior packages or multipacks which, in their simplest form, consist of a corrugated board tray which is provided with low edges and in which a number (e.g. 2x3 or 3x6) of packaging containers are placed tightly grouped, whereafter the unit is wrapped with shrink-film. Another embodiment of the exterior package or multipack includes a corrugated tray with high edges and possibly also an upper portion or a lid which imparts between protection to the packaging containers when they are to be transported longer distances or when the risk of damage for other reasons is great. In packaging containers of parallelepipedic type without projecting parts or details, this type of multipack is simple to dimensionally adapt so that it tightly surrounds the group of individual packaging containers. When, however, the packaging containers are provided with projecting parts or details such as opening arrangements or the like, these come into conflicting contact with the upper portion or the lid, with the result that this type of exterior package has hitherto been less suitable for use together with packaging containers with projecting opening arrangements.

An exterior package 1 which is particularly intended for, for example, parallelepipedic packaging containers

with projecting opening arrangements is manufactured according to the present invention from a "shroud" or blank 2 of fibre material, for example corrugated board or laminate including different layers of paper and possibly also plastic and an external artwork layer. The blank 2 includes a large number of fold lines 3, which make it possible to fold the blank into substantially parallelepipedic configuration. Thus, the fold lines 3 define four sequential wall sections 4 from one another at the same time as they define a projecting sealing flap 5 from a wall section 4 located at one end of the blank 2. Additional fold lines 3 divide off sealing flaps 5 at both opposing sides of the wall sections. The four wall sections thus form, in sequence, a first side 6, a bottom portion 7, a second side 8 and an upper portion 9, at whose free end the previously mentioned sealing flap 5 is located. The remaining sealing flaps 5 located at opposite sides of the blank are intended together to form the two opposing end walls 10 of the exterior package 1. The wall section 4 of the blank 2 forming the upper portion 9 of the exterior package 1 is provided with transverse mutually parallel fold lines 3 and an I-shaped incision 11 located between them and having a central portion displaying recesses 12 whose function will be described in greater detail hereinbelow.

When the blank 2 according to the invention is to be reformed into a finished exterior package 1, a number of parallelepipedic packaging containers 15 is placed on its bottom portion 7. The packaging containers, which, for instance, may be six in number, are placed with their upper wall surfaces 13 and opening arrangements 14 located thereon facing upwards and in tight formation, preferably 2x3. Hereafter the blank 2 is folded along the fold lines 3 located between the lower portion 7 and adjacent sides 6 and 8, so that the sides 6 and 8 assume a vertical position and contact with the outer wall surfaces of the group of packaging containers 15. Hereafter, the opposing sealing flaps 5 at their end portions are provided with a suitable adhesive, for example hot-melt, whereafter they are folded in so as to form the end walls 10 of the exterior package 1. It will be apparent from Fig. 1 that the wall sections 4 are provided with windows 16 which are either, as in the sides 6 and 8, in the form of cut-out portions centrally located in the wall sections 4 or, as is the case in the end walls 10, are formed automatically because the sealing flaps 5 are of a width which together is less than the width of the packed packaging containers 15.

When the upper portion 9 of the exterior package 1 is to be formed, a Z-folding operation is first carried out along the mutually parallel fold lines 3 so that, at each pair of these lines, the material is folded first through 90° in one direction (vertically) and then 90° in the other direction (horizontally), which results in the configuration illustrated in Figs. 3 and 4 with support portions 17 which form rigidifying, U-beam like constructions. Preferably, the support portions 17 extend as shown in Fig. 2 around the upper portion so that they form a frame 18

extending around this upper portion, but the support portions 17 may of course also consist exclusively of the two mutually parallel portions apparent from Figs. 3 and 4. However, the support portions must be distributed over the surface area of the upper portion such that they together form a functioning support surface 21 which forms a substrate permitting stacking of additional multipacks above the pertinent multipack. The support surfaces 21 are thus all located in the same plane, hereinafter referred to as upper plane 19 which is parallel with a lower plane 20 which coincides with the upper wall surface of the packed packaging containers. The opening arrangements 14 projecting from this surface are accommodated, partly in the beam-like construction of the one support portion 17 and partly in the space which is formed in the upper portion 9 (at the incision 11) after the folding along the mutually parallel fold lines 3. In such instance, the recesses 12 located along the incision 11 are adapted so as to grasp about the individual opening arrangements 14 located in the space, such that the upper portion 9 and the packaging containers are further fixed in relation to one another. The distance between the lower and the upper plane 20 and 19, coincides substantially with the height of the individual opening arrangements, i.e. the height of the opening arrangements, with the result that the parts of the upper portion 9 located in the upper plane 19 abut against the upper surfaces of the opening arrangements 14 at the same time as the parts of the upper portion 9 located in the lower plane 20 abut against the upper wall surfaces 13 of the packaging containers, which makes for an extremely stable construction. It is naturally also possible to design the upper portion 9 in another manner, for example by placing the various support portions 17 with different orientation or location. This may, of course, also be adapted to the siting of the opening arrangements 14 of the packaging containers 15, but in practice it has proved suitable that at least the U-beam like construction of the one support portion 17 surrounds a row of opening arrangements, at the same time as another row of opening arrangements engages in form-locked fashion with the upper portion 9, for example in the form of the recesses 12 of the incision 11. For purposes of mechanical strength, the U-beams are oriented with their flanges at a 90° angle in relation to both the upper and the lower plane 19, 20 (i.e. vertically) and in that case when the support portions 17 form a continuous frame around the upper portion 9, a powerfully strong construction is created which also makes it possible to provide the multipack with a carrier arrangement 22, for example in the form of a strap (Fig. 5) extending between two opposing sides of the frame 18. As was mentioned previously, the exterior package 1 is manufactured from, for example, corrugated board and is formed by folding and sealing with hot-melt, which is a known technique and need not be described in greater detail in this context. It should, however, be observed that the frame-like construction of the upper portion 9 is,

along the greater part of its circumference, either directly connected to adjacent wall sections or provided with the sealing flaps 5 which overlap adjacent wall sections 4 and are sealed to them so that a stable, durable and resistant construction is obtained. As a result of the cooperation with both the upper wall surfaces 13 of the packaging containers and the upper sides of the opening arrangements 14, the construction with support portions 17 gives an extremely rigid and resistant upper portion 9 which makes it possible to stack a large number of multipacks filled with packaging containers 15 to a great height without the risk of damage either to the opening arrangements or the rest of the packaging container. The exterior package or multipack according to the present invention also affords superior protection in other respects to the packaging containers, against handling damage, and thereby makes possible a rational distribution and storage of packaging containers which are provided with projecting opening arrangements.

Claims

1. An exterior package for packaging containers (15) which are provided with projecting opening arrangements (14), the exterior package (1) having wall sections (4) which wholly or partly surround a number of packaging containers, and also having an upper portion (9), **characterized in that** the upper portion (9) includes upper and lower planes (19, 20) between which the opening arrangements (14) are located, as well as support portions (17), at least two of these being disposed in spaced apart relationship in order to form support surfaces (21) located in the upper plane.
2. The exterior package as claimed in Claim 1, **characterized in that** the support portions (17) are distributed over the area of the upper portion (9).
3. The exterior package as claimed in any of Claims 1 or 2, **characterized in that** a number of support portions (17) form a frame (18) extending around the upper portion (9).
4. The exterior package as claimed in any of Claims 1 to 3, **characterized in that** the support portions (17) form a rigidifying beam construction.
5. The exterior package as claimed in Claim 4, **characterized in that** the beam construction includes U-beams which are oriented with the flanges at a 90° angle in relation to said upper and lower planes (19, 20).
6. The exterior package as claimed in Claim 5, **characterized in that** the U-beams are oriented with their web in the upper plane (19) and have an inner

width which is greater than the corresponding width of the opening arrangements (14).

7. The exterior package as claimed in Claim 6, **characterized in that** the U-beams surround one or more opening arrangements (14).
8. The exterior package as claimed in any of Claims 1 to 7, **characterized in that** the upper portion (9) engages in form-locked fashion with the opening arrangement of the packaging container (15).
9. The exterior package as claimed in any of Claims 1 to 8, **characterized in that** the parts of the upper portion (9) located in the lower plane (20) display recesses (12) for mechanical cooperation with the opening arrangements (14).
10. The exterior package as claimed in Claim 1, **characterized in that** the parts of the upper portion (9) located in the lower plane (20) abut against the upper wall surfaces of the packaging containers (15) surrounded by the exterior package.
11. The exterior package as claimed in Claim 1, **characterized in that** the parts of the upper portion (9) located in the upper plane (19) abut against the upper side of the opening arrangements (14).
12. The exterior package as claimed in any of Claims 1 to 3, **characterized in that** the distance between the upper (19) and the lower (20) planes substantially coincides with the height of the opening arrangements (14).
13. The exterior package as claimed in any of Claims 1 to 12, **characterized in that** it is at least partly manufactured from folded and glued fibre material.
14. The exterior package as claimed in any one or more of Claims 3 to 13, **characterized in that** a carrier arrangement (22) is connected to two opposing support portions (17) belonging to the frame.

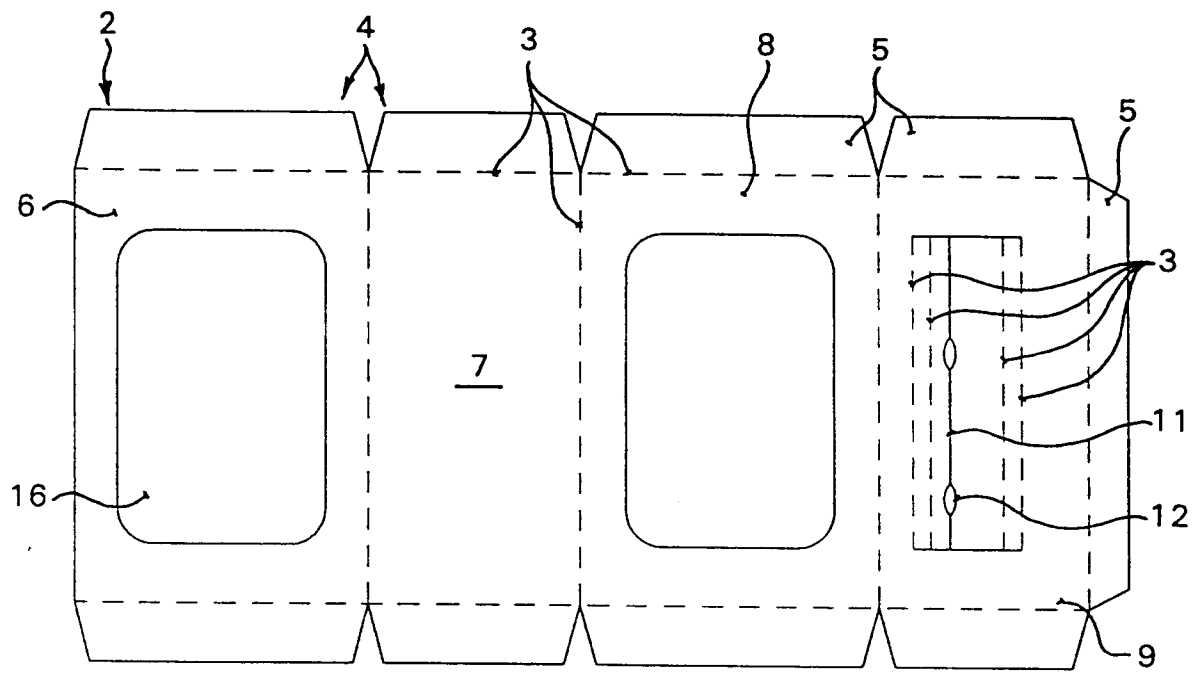


Fig 1

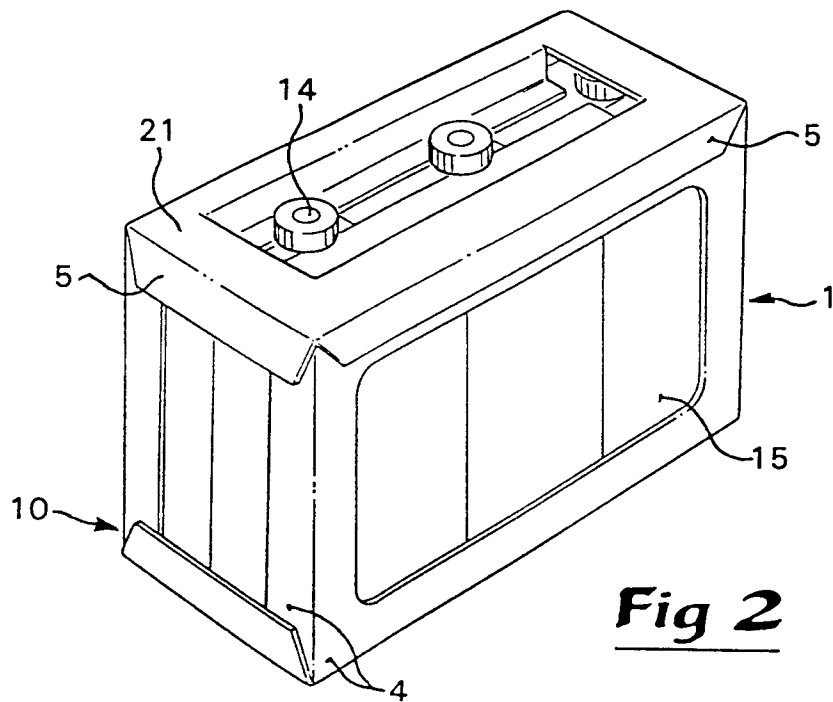


Fig 2

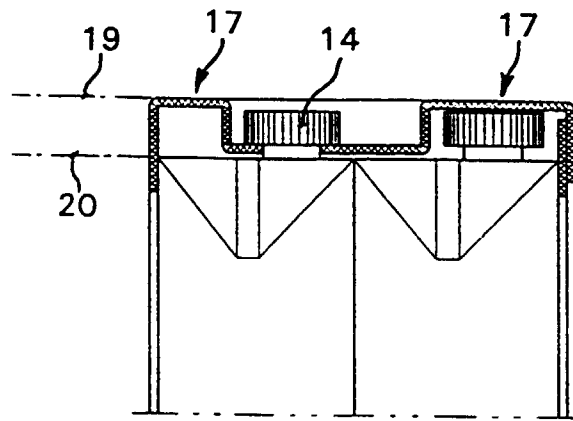


Fig 3

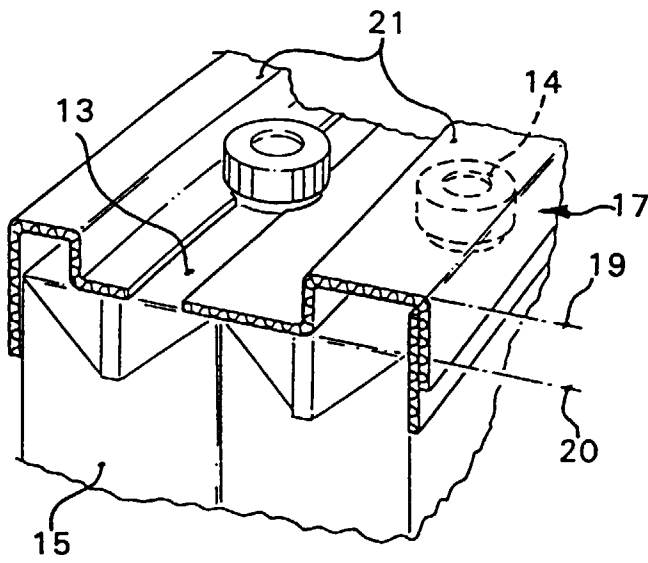


Fig 4

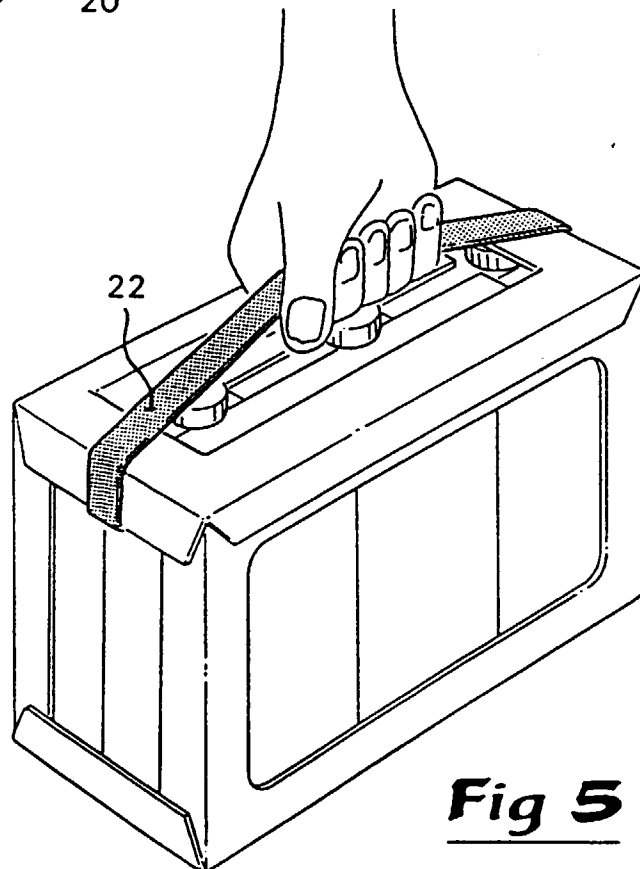


Fig 5



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EUROPEAN SEARCH REPORT

Application Number
EP 98 10 6218.5

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.6)
X	GB 1342180 A (OLINKRAFT, INC), 28 December 1973 (28.12.73) * figures 1-5 *	1-13	B65D 71/00 B65D 75/00 B65D 85/62
Y	* figures 1-5 *	14	
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Y	FR 2228008 A1 (LA ROCHETTE-GENPA), 29 November 1974 (29.11.74) * figure 2 *	14	
A	* figure 2 *	1	
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A	WO 9301989 A1 (NORDEN PAC DEVELOPMENT), 4 February 1993 (04.02.93) * figures 1-3 *	7-12	
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The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
STOCKHOLM		29 September 1998	KERSTIN BRINKMAN
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03.92 (P4401)



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EUROPEAN SEARCH REPORT

Application Number
EP 98 10 6218.5

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.6)
A	WO 9422737 A1 (RIVERWOOD INTERNATIONAL LTD), 13 October 1994 (13.10.94) * page 2, line 19 - line 24, figure 4 * -----	1	
			TECHNICAL FIELDS SEARCHED (Int. Cl.6)
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
STOCKHOLM		29 September 1998	KERSTIN BRINKMAN
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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