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

(11) EP 0 899 200 A1

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
03.03.1999 Bulletin 1999/09

(51) Int. Cl.[6]: **B65D 5/20**

(21) Application number: **98610029.5**

(22) Date of filing: **20.08.1998**

(84) Designated Contracting States:
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
Designated Extension States:
AL LT LV MK RO SI

(30) Priority: **29.08.1997 DK 98297**

(71) Applicant:
Schur Packaging Systems A/S
8700 Horsens (DK)

(72) Inventors:
- **Lambach, Heinrich Wilhelm**
  8700 Horsens (DK)
- **Joergensen-Beck, Frode**
  8700 Horsens (DK)

(74) Representative:
Skoett-Jensen, Knud
K. Skoett-Jensen Patentingenioerer A/S
Lemmingvej 225
8361 Hasselager (DK)

(54) Sales carton for edible products

(57) With the starting point in a conventional, rectangular box or carton packaging for ice-cream, it is disclosed that distinct advantages can be gained by configuring the lower parts of the corners of the packaging with an oblique surface (2), so that the corner angles seen from the inside are increased to more than 90°, while the side and end surfaces (8,10) of the packaging can otherwise continue to form mutual angles of 90°, whereby it is achieved that the packaging can in a safe manner be stacked together in pallet-conveyed groups, and without the lower narrowing inwards resulting in any significant reduction in the contents volume of the packaging.

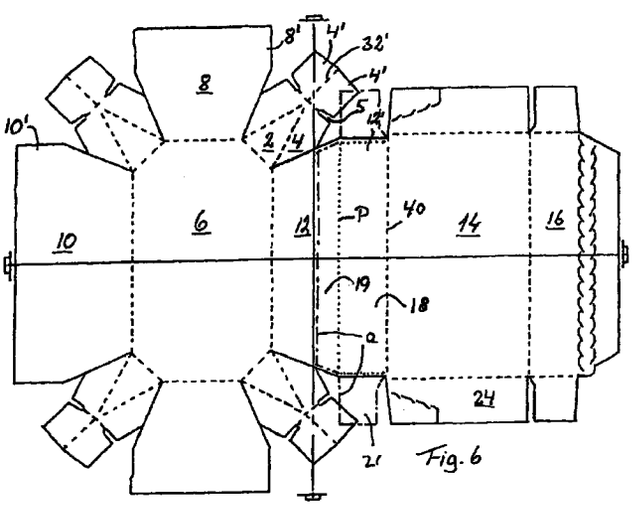

Fig. 6

EP 0 899 200 A1

Description

[0001] The present invention concerns a cardboard packaging of the carton type, especially for ice-cream, and of the kind where outwardly and upwardly sloping side parts at the bottom corners create angles which are greater than orthogonal angles. This shape can easily be achieved by using carton sides which are so trapezoidal that when in their raised state they will slope outwards upwardly, in that the corner edges themselves will also be outwardly and upwardly sloping, and even more outwardly sloping than the adjacent wall parts. From the point of view of application, the shape offers the advantage that material like ice-cream which can be desired to be "dug up" from the packaging, e.g. with a spoon, is easier to remove than from a purely right-angled carton, partly because there is clearance upwards and partly because it is easier to reach into the bottom corners.

[0002] While the sloping walls thus provide advantages from the point of view of use, on the other hand they entail problems in handling in connection with stacking and stowing together. Moreover, when the cartons are packed with correct orientation, this will result in a reduced utilisation of space during transport and storage, in which respect the right-angled packagings will be far better.

[0003] The invention is based on the observation that the aforementioned advantage from the point of view of use is associated to a special extent precisely with the increased angle at the bottom corners, i.e. to a higher degree than to the fact that an obtuse angle is provided longitudinally with the sides. On this basis, it is disclosed with the invention that the packaging in general appears with regular right-angled shape, merely with the modification that at the bottom corners there is arranged a triangular part which, from a sloping corner cut-off line at each corner of the carton's bottom field, extends obliquely upwards and outwards for angular coverage of the respective geometric corners. With such a filling-out of the corners, there is achieved not only the same but an even greater increase of the corner angles than is the case with the known cartons with sloping sides, in that the corners are made less sharp.

[0004] In principle, it is without significance for the invention whether the said corner coverage is arranged internally in a box-shaped packaging or as an externally-visible oblique triangular forming of the carton's lower corner portions. In practice, however, the latter is to be preferred, and according to the invention this is directly possible in that the cardboard or pasteboard blank from which the carton is raised at the corners of the bottom field can be configured with obliquely projecting triangular corner flaps which, when the carton is raised, are joined with corresponding obliquely cut-off end edges on the carton's side fields, so that these fields can be raised to the vertical but, however, with connection to oblique corner flaps, which seen from both the outside and the inside provide both an oblique as well as upwardly narrowing cutting-off of the bottom corner. In practice, this can be achieved in a simple manner by using a carton material which is blanked out with the relevant, special triangular corner fields extending obliquely from the corners of the bottom field.

[0005] According to the invention, it can be desirable that the outwardly sloping triangular corners are provided only over a lower extent of the carton's height, while above this the side of the carton has a normal right-angled shape. The higher the triangular corner fields, the less oblique they will be, and in order to maintain a desirably distinct sloping-out of the bottom corner fields, the configuration disclosed here can be preferred for cartons of relatively great height.

[0006] This configuration can also be preferred from another aspect, namely in cases where the carton is desired to be configured with a re-closable cover of the flap type, i.e. where an upper cover field, which extends from a fold-line along the upper edge of the side-wall fields, has projecting cover-skirt fields along its free front edge and opposing end or side-edges. The corner fields on such a cover-skirt can for good reason not be configured for abutment against carton corner fields which extend obliquely upwards and outwards, the reason being that the cover could thus neither be closed nor opened, and if the cover-skirt is provided with right-angled corners extending downwards over downwardly-inwardly sloping carton corners, the skirt corners will stand out from the carton corner edges, which potentially entails problems regarding damage in the handling of the cartons. According to the invention, if the extent of the height chosen for the triangular corner fields is such that these just reach up to the lower ends of the cover-skirt corners, a harmonically compact overall surface is achieved, completely without any inconvenient projections.

[0007] The invention will now be described in more detail with reference to the drawing, in which

Fig. 1 shows a carton blank for use in the manufacture of a carton according to the invention,
Fig. 2 is a sketch of a known packaging,
Fig. 3 is a perspective view of the carton blank from Fig. 1, shown with corner fields folded up and bent corner flaps,
Fig. 4 is a perspective view of the fully raised carton, shown torn open along the serrated lines,
Fig. 5 is the same, shown in the closed and sealed condition,
Fig. 6 is a plan view of a second carton blank for use in the manufacture of a carton according to the invention,
Fig. 7 is a section of this carton blank, shown in perspective with corner fields folded up and bent corner flaps,
Fig. 8 is a perspective view of the fully raised carton in the closed condition, and

Fig. 9 is the same but torn open along the serrated lines.

[0008] The carton blank shown in Fig. 1 has a bottom field 6 which at oblique corner lines 30 has obliquely extending corner parts consisting of triangular outwardly-pointed corner fields 2 with corner flaps 4, and which has side walls consisting of side pieces 8, front piece 10 and back piece 12, all of which have obliquely cut-off side edges along lines 28, so that the breadth of the side walls is smallest along the bottom field 6. The carton blank also comprises a cover field 14 which extends from the back piece 12 along a cover fold-line 40 and has cover skirt parts consisting of cover side pieces 24 with parts 26 which can be torn off, plus a cover front piece 16 which has an extension, partly with a strip 18 which can be torn off and partly a sealing part 20. The cover front piece also has cover corner flaps 22.

[0009] In Fig. 3, the corner flaps 4 are bent so that their planes form a right-angle, while at the same time the corner fields 2 are turned up from the bottom field 6 at such an angle that the corner flaps are in planes which are at right-angles to the bottom field. It is hereby possible to fasten the side pieces 8, the front piece 10 and the back piece 12 to the corner flaps 4 in the formation of vertical walls, so that the side edges of the walls are along the sides on the triangular upwardly-pointed corner fields 2, which is illustrated by the sketches Figs. 4 and 5. The figures also show the flap cover formed from the carton blank. This is arranged to be re-closable after having been torn open, see Fig. 4, in that the flap cover pivots around the cover fold line 40 and has skirt parts formed by the cover front piece 16 fastened to the cover sides 24 with cover corner flaps 22. The cover skirt will lie close to the carton's vertical wall parts, i.e. the side pieces 8, the front piece 10 and the back piece 12, but not around the upwardly and outwardly-pointing corner fields 2, in that the contact will only be between the tip of the corner field 2 and the inner right-angled corners in the cover skirt. When the carton is used, the projecting lower parts of the cover skirt corners will be more exposed to deformation than the remaining parts of the carton, which in a known manner is partly compensated for by the stiffness which exists at the flap assembly in the cover skirt corner.

[0010] The joining of corner flaps 2 with the side pieces 8, the front piece 10, the back piece 12 and the joining of the carton's other parts surface against surface can be effected in a known manner, for example by using plastic-coated carton blanks which can be stuck together surface against surface by a short period of hot-air blowing, which is expedient since the use of the carton for the storing of ice-cream and the like necessitates plastic or corresponding covering inside the carton.

[0011] As will be seen in Fig. 4, the carton will form a cavity with inside corners which have angles which are greater than 90 degrees respectively between the corner field 2, the bottom field 6, the side pieces 8, the front piece 10 and the back piece 12, while the angle between the three latter parts and the bottom field will be a right-angle. It is hereby achieved that it is easy to remove e.g. ice-cream from the bottom of the carton's cavity, in that the ice-cream is merely scraped to one of the corners where, due to the large angles, it will be easier to get at with a spoon.

[0012] This is just as easy, if not easier, than is the case with known packagings which have walls sloping down towards the bottom, see the sketch in Fig. 2, where it is indeed possible to remove the ice-cream from any place along the sloping side walls, but normally it will be easier to scrape the ice-cream to a corner formed by the sloping walls and spoon it up it from there. The removal of the ice-cream can, however, be effected much easier with the carton according to the invention, in that it is precisely the carton's plane corner field and the large angles that this forms with the adjacent sides and bottom field which makes the spooning-up of the ice-cream particularly easy.

[0013] Compared with the above-mentioned example of a known packaging, with the carton according to the invention there is achieved the clear advantage that with walls which are at right-angles to the bottom field, the carton functions as a rectangular packaging and is therefore easy to stack. Moreover, the space utilization is improved.

[0014] With the configuration shown in Fig. 6, the triangular corner fields 2 have a reduced height dimension, in that their side flaps 4, however, are extended outwards in flap parts 4' on both sides of a central extension 32' of the fold lines 32. A notch 5 is provided between the parts 4 and 4'. Correspondingly, the oblique side edges on the fields 8, 10 and 12 are shortened, so that the outermost part of these fields appears with rectangular field parts 8', 10' and 12'.

[0015] In principle, this carton blank is raised in quite the same manner as blanks cf. Fig. 1, whereby the said outer field parts 8', 10' and 12' will be folded up to mutual vertical abutment in the corners, in that the corners will be oblique only at the lower corner fields 2, cf. the final form of the corner pieces in Fig. 7, which will appear with a bend between the upper and the lower part. The formation of this bend will require a certain deformation of the material in the transition between the two parts, i.e. between the inner ends of the notches 5, which is not directly achievable by a simple folding-up. With a preferred manner of formation, the corner pieces are first raised to the vertical, after which the side fields are raised for joining along the upper corners, and thereafter the corner pieces are pressed out by means of a suitable tool in the forced forming of said corner pieces, cf. Fig. 7.

[0016] After the associated fastening of the flaps 4 and 4' by gluing or preferably welding to the carton sides, the corner pieces will constitute spatially deformed parts which provide a relatively strong rein-

forcement, whereby the thickness of the carton can be minimized.

[0017] As will be seen from Figs. 8 and 9, the cover skirt can hereby co-operate in a normal manner with a fully rectangular upper part of the carton, and the carton will distinguish itself only by the important fact that the lower bottom corners have been flattened out at the sacrifice of only a small part of the carton's volume.

[0018] The invention is not particularly related to a possibly appearing carton cover 14, but it must be mentioned, however, that it has been found to be advantageous to modify the said integrated cover, in that if this exists as an independent, simply adhered unit, it can be provided with improved reclosing characteristics corresponding to the cover closing of the so-called neck-cartons, where the swivel axis of the cover lies at a level down under the top plane of the carton, and where at its front edge area there is subsequently provided a certain resilient resistance against opening and closing of the cover, i.e. a desirable resistance against a much too easy opening of the re-closed cover.

[0019] Such an alternative arrangement of the cover is illustrated in Fig. 6, where the cover field 14 with associated skirt fields 16 and 24, plus a further, rearmost skirt field 18, can appear as an independent element which, in towards the carton blank itself, is limited as shown by the stippled lines a. It will be seen that the skirt field 18 is extended in an outer flap piece 19 which, outside a fold line p, is glued to the back piece 12 of the carton. The skirt field 18 has projecting end flaps 21 which can be connected to and form fixed corner joints with the cover field's side flaps 24, so that the cover can appear with four skirt pieces. The side field 12 of the carton is simply cut off along the line 40.

[0020] Figs. 10 and 11 show the cover in the closed and partly open position. Since the flap piece 19 and herewith the fold line p are disposed at a distance below the top plane of the carton, as with the so-called neck-cartons it is achieved that the front edge area offers a certain resistance against the opening of the carton, which provides an expedient reclosing capability.

Claims

1. Packaging of the carton type, especially for ice-cream, and of the kind where outwardly and upwardly-sloping side parts at the bottom corners create angles which are greater than right-angles, **characterized** in that the packaging in general appears with regular right-angled shape, but with the modification that at the bottom corners there are arranged triangular field parts which from an internal oblique corner cut-off line at each corner extend obliquely upwards and outwards for oblique coverage of the respective geometrical bottom corners.

2. Carton packaging according to claim 1, **characterized** in that the relevant cut-offs are effected by means of corner parts which are integrated coherently with the packaging item in such a manner that the oblique cut-off will be visible both internally and externally.

3. Carton packaging according to claim 1, **characterized** in that the oblique, triangular corner fields appear locally at the bottom corners, in that the sides of the carton over these fields meet each other in vertical corner bend-lines.

4. Carton packaging according to claim 3, **characterized** in that the corner fields, which at their oblique sides are configured with side flaps for connection to the adjacent side and end fields of the carton, are extended upwards in singly-bent flap parts for mutual connection of the adjacent, vertically-extending, upper side edge parts of the said side and end fields.

5. Carton packaging according to claim 4, **characterized** in that at the transition between the side flaps and the oblique sides and said extension, a notch (5) is provided which enables an integrated configuration of the oblique corner fields and the extensions which extend vertically from these fields.

6. Carton packaging according to claim 3, **characterized** in that the oblique corner fields appear under the lower edge of vertical, downwardly-extending skirt parts of a cover on the carton.

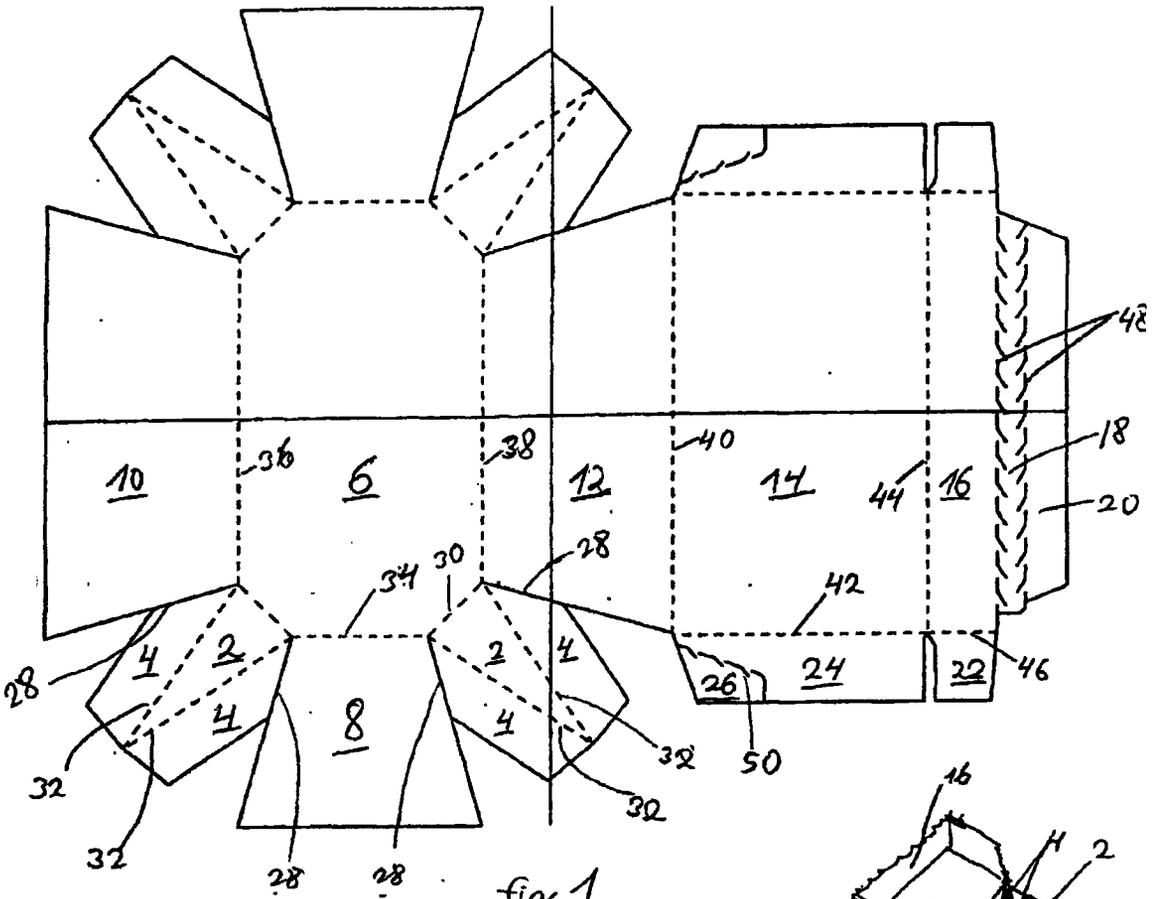

fig 1

fig 2

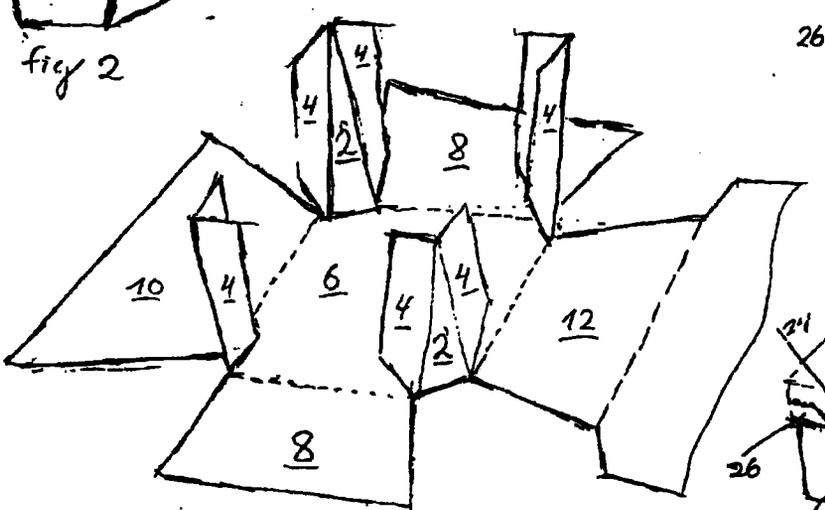

fig 3

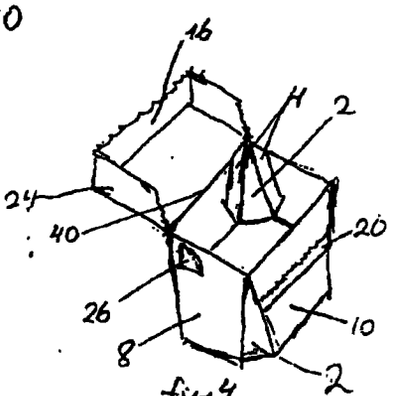

fig 4

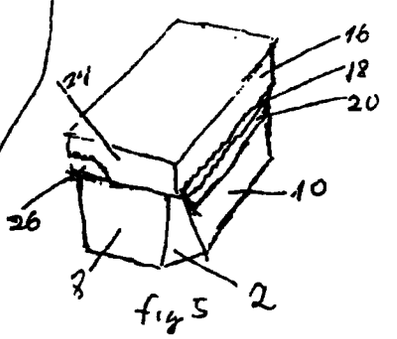

fig 5

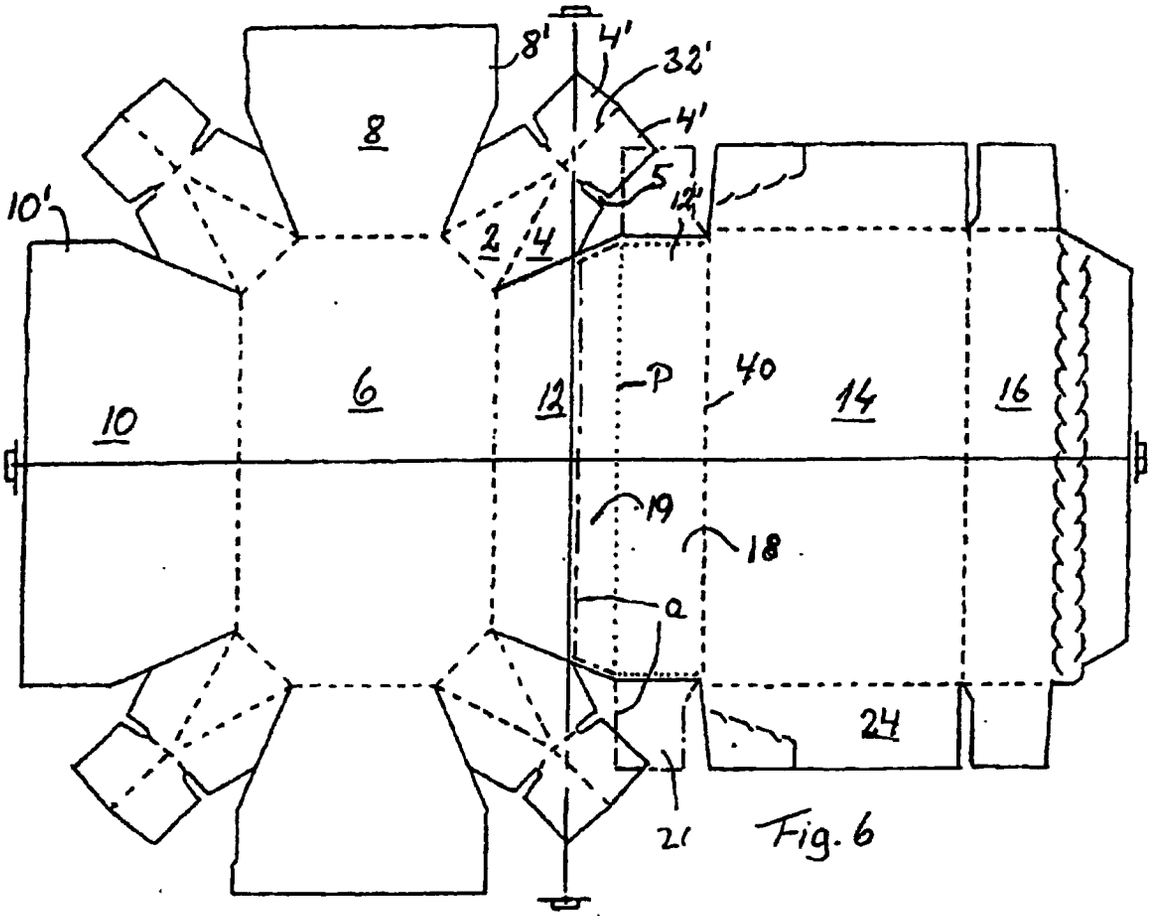

Fig. 6

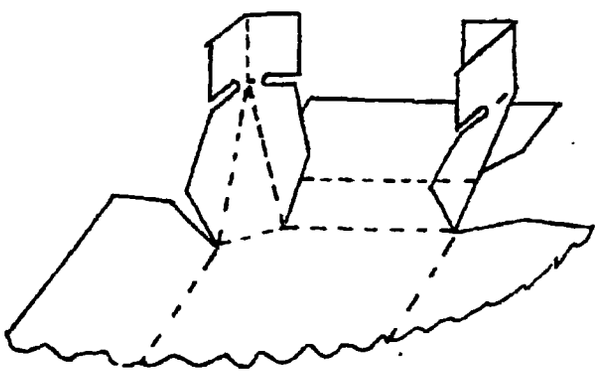

Fig. 7

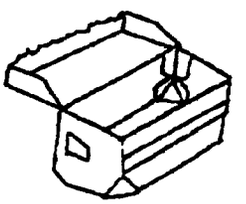

Fig 9

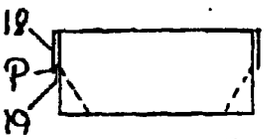

Fig. 10

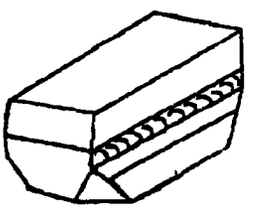

Fig. 8

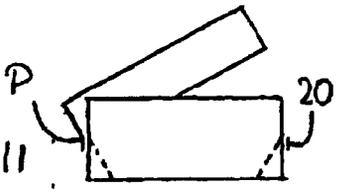

Fig. 11

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 98 61 0029

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 87 02008 A (DUNI BILA) 9 April 1987 * figures 1,2 *	1	B65D5/20
A	FR 2 286 067 A (AB ZIRISTOR) 23 April 1976 * figures *	1	
A	EP 0 455 610 A (MANZONI) 6 November 1991 * figures *	1	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			B65D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	11 November 1998	Newell, P

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 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 98 61 0029

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

11-11-1998

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 8702008 A	09-04-1987	SE 447569 B	24-11-1986
		AU 6472386 A	24-04-1987
		DK 274487 A,B,	29-05-1987
		EP 0270551 A	15-06-1988
FR 2286067 A	23-04-1976	SE 391906 B	07-03-1977
		AU 8483475 A	24-03-1977
		BE 833425 A	31-12-1975
		CH 601067 A	30-06-1978
		DE 2540530 A	01-04-1976
		DE 7528783 U	25-08-1977
		GB 1479215 A	06-07-1977
		JP 1029463 C	22-01-1981
		JP 51058187 A	21-05-1976
		JP 55019824 B	29-05-1980
		NL 7510841 A	18-03-1976
		SE 7411610 A	17-03-1976
EP 455610 A	06-11-1991	IT 90040419 A	30-10-1991

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82