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(72) Inventor: **Mur Gimeno, Emilio**
Alicante (ES)

(74) Representative: **Gonzalez Vacas, Eleuterio**
Calle Sagasta, 4
28004 Madrid (ES)

(71) Applicant: **Assidomän Iberoamericana S.A.**
03690 San Vicente del Raspeig (Alicante) (ES)

(54) **Carboard box for the transport of horticultural products**

(57) Constituted from a laminated and monopiece body of stamped cardboard, in which is defined a central sector (1) constitutive of the bottom of the box and lateral sectors constitutive of its end panels (3) and its side panels (4), both having lateral extensions (5-5') for the assembly of the box, which are fastened by means of adhesive to the complementary element, the box incorporates either as a prolongation of its end panels (3) or as a prolongation of its side panels (4), equal folding strips (6) destined to be placed in correspondence with the

opening of the box, slightly strangling it and defining seating or support areas in the stacking of the boxes, with said folding strips (6-6') having end prolongations determinant of fins (7) which fold over the external face of the prolongations (5), which fasten to them by means of adhesive and that in turn remain fitted into complementary cut-outs (8), in the first case of the side panels (4) and in the second case of the end panels (3), with which said fins result coplanar and with which they establish surface continuity.

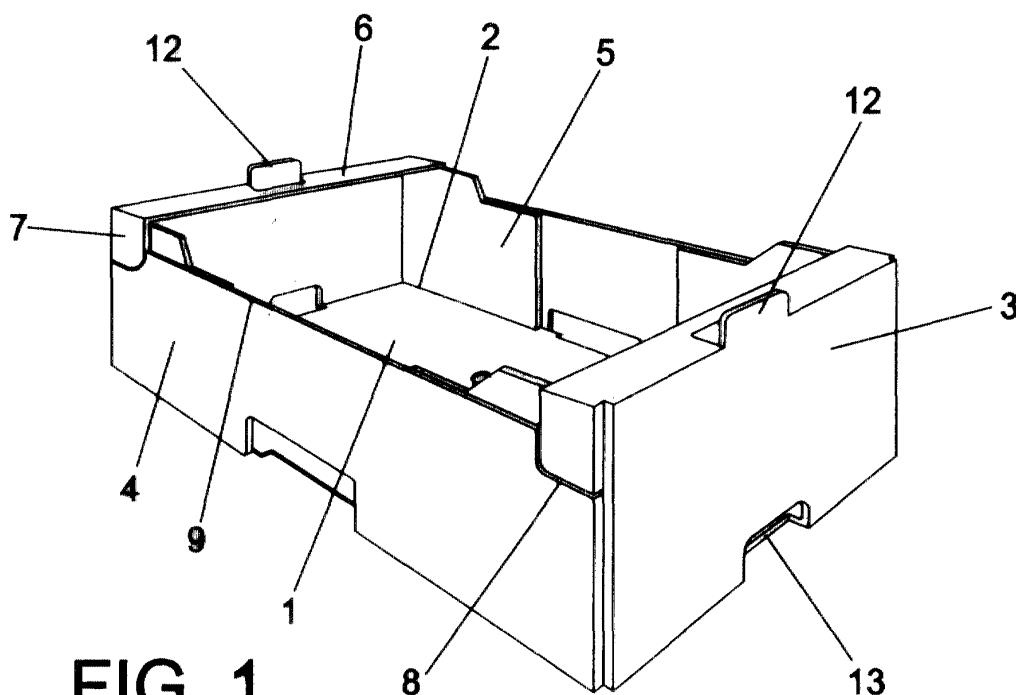


FIG. 1

Description

OBJECT OF THE INVENTION

[0001] The present invention refers to a cardboard box of the type used in the transport of horticultural products, a box which has been conceived and structured in order to attain a maximum mechanical resistance with a minimum use of material.

[0002] It is likewise the object of this invention to attain a box which offers optimum stability properties when being stacked with other identical ones, and that also ensures an optimum ventilation for the products contained inside, when in such a stacked situation.

BACKGROUND OF THE INVENTION

[0003] The normal evolution in the design of cardboard boxes with the above-mentioned application has lead to the generalized use of monopiece boxes, in which by means of stamped lines a bottom is defined from which, by means of folding lines, two end panels and two side panels emerge which must have mutual means of fastening in order to obtain the assembly of the box.

[0004] One of the usual solutions consists in prolonging the ends of the side panels with fins which fold around the end panels, duplicating the height of these and adding flanges to their free edge which, after folding the end panel on itself, with the insertion of the prolongations of the side panels, couple into openings established at the bottom of the box, thus attaining its assembly without adhesives, staples or any other element foreign to the laminated body of cardboard itself.

[0005] With this solution a box with reinforced end panels is obtained which, however, presents two fundamental problems, a complete absence of reinforcement at the level of the side panels and an excessive use of material.

[0006] A saving of material is attained making the end panels to be single, with these having the added prolongations at the ends and folding them over the side panels, fastening these latter pieces with staples, glue, or something similar, but this solution determines an absence of reinforcement in the end panels, which are precisely the elements of the box that are going to support greater stresses.

SPECIFICATION OF THE INVENTION

[0007] The cardboard box that the invention proposes constitutes a technological advancement in this field, resolving in a completely satisfactory way the problems expressed previously, in the different aspects mentioned.

[0008] For this, more specifically and from the basic general structuring of a cardboard box of the type mentioned before, that is, from a laminated, monopiece body

and preferably of cardboard, conveniently stamped, wherein is established a central sector, constitutive of the bottom of the box, which by means of folding lines prolongs into its end panels and its side panels, with said end panels having prolongations which fold toward the side panels and that fasten to these by means of adhesive, the invention centers on the fact that the mentioned end panels prolong, further on from their upper edge, into equal folding strips toward the imaginary plane corresponding to the opening of the box, with said strips also having small end prolongations determinant of fins that, folding over the external face of the lateral prolongations of the end panels and fastening to these by means of adhesive, remain fitted into cut-outs operatively practiced in the upper corners of the side panels, so that said fins remain perfectly fitted into the corresponding cut-outs, establishing a surface continuity between one and the other.

[0009] It is optionally provided that the mentioned folding strips, instead of emerging from the end panels may do so from the side panels, in which case the fins fold over the end panels and fit into cut-outs in these.

[0010] In any case, the mentioned strips slightly strangle the opening of the box, with sufficient magnitude to establish supports which improve the stacking of the boxes, stacking which is stabilized with the collaboration of flanges which in the first case emerge centrally from the upper edge of the end panels and in the second case from the middle area of the upper edge of the side panels, fitting in both case into cut-outs operatively practiced in the lower edge of those elements. In any case a dovetailing effect is obtained between said flanges and cut-outs, ensuring transversal stability for the stacked boxes.

[0011] According to another characteristic of the invention it has been provided that either the end panels of the box, when these are the ones holding the folding strips, or the side panels, when these are the ones holding said strips, are oversized in height with respect to the other elements, so that in the stacking of the boxes ample side windows are defined, located either in correspondence with the end panels or in correspondence with the side panels, which ensure an optimum ventilation of the inside of the box and, consequently, of its content.

[0012] Optionally, these airing windows, especially in the event that the folding strips are located on the end panels, may be obtained by means of ample trapezoidal cut-outs centered above the side panels, in which case the height of the end zones of the side panels may be coincident with that of the end panels.

[0013] The possibility has also been provided, on the free extremity of the upper edge of the prolongations of the end panels, for flanges to be established similar to those previously mentioned, that with complementary cut-outs of the lower edge of the side panels, increase the number of dovetail coupling points between boxes and, consequently, they improve the lateral stability for

them.

DESCRIPTION OF THE DRAWINGS

[0014] To complement the description being made and with the object of assisting to have a better understanding of the characteristics of the invention, according to a preferred example of a practical embodiment of it, enclosed as an integral part of said description are a series of drawings in which, with an illustrative and non-limiting nature, the following has been represented:

Figure 1.- Shows, according to a perspective view, a cardboard box for the transport of horticultural products, embodied according to the object of the present invention, according to a first possible embodiment in which the strips which strangle the opening of the box are placed at the level of the end panels.

Figure 2.- Shows, according to a similar representation as that of the previous figure, a possible embodiment in which said strips are placed at the level of the side panels.

Figure 3.- Shows, in conclusion, another possible embodiment of the box in which the folding strips are placed in the interior of the end panels, such as in the case of figure 1, but in which the side panels present a maximum height coincident with that of the end panels.

PREFERRED EMBODIMENT OF THE INVENTION

[0015] In view of the figures referred to and especially figure 1, it can be seen how the cardboard box being acclaimed is constituted, as in itself it is conventional, by means of a laminated, monopiece body, preferably of cardboard, wherein by means of stamping a rectangular central sector (1) is defined, constitutive of the bottom of the box, from whose four edges and by means of folding lines (2), the end panels (3) of the box and its side panels (4) emerge, with said end panels (3) also having lateral prolongations (5) which bend or fold toward the interior of the box, precisely toward the internal face of the side panels (4), to which they fasten by means of adhesive for the assembly of the box. From this basic and conventional structuring the invention is centered on the fact that the end panels (3) that prolong, by means of their upper edge, into a folding strip (6) destined to be placed in correspondence with the imaginary plane of the opening of the box, with each strip (6) having end prolongations determinant of fins (7) which in turn fold over the external face of the prolongations (5) to which they fasten definitely by means of adhesive, and that remain total or partially fitted into cut-outs (8) operatively practiced on the upper corners of the side panels (4), so that said fins (7) result coplanar with the corresponding side panel (4).

[0016] However, and as shown in the embodiment of

figure 2, the folding strips (6') may emerge from the side panels (4) and its end fins (7) may fit into cut-outs (8) of the end panels (3), in which case they result coplanar with these latter ones and in which case the prolongations (5') for assembly of the box emerge from the side panels (4) instead of doing so from the end panels (3).

[0017] In the first case, that shown in figure 1, the end panels (3) are oversized in height with respect to the side panels (4), so that when the upper edge (9) of these latter ones remains located substantially lower than the folding strips (6), in the stacking of boxes ample side windows are defined for ventilation of their interior. In the same line and when the folding strips (6') are placed above the side panels (4), as in the example of a practical embodiment represented in figure 2, it is the end panels (3) which are undersized in height and that, consequently, define with the upper box the mentioned ventilation windows.

[0018] There exists, however, the possibility, shown in figure 3, that the end panels (3) and the side panels (4) present the same height, specifically when dealing with boxes of greater capacity, in which case to attain the same ventilation effect, the side panels have an ample trapezoidal cut-out (10) at the middle level, which may be complemented with the existence of small openings (11) in the bottom (1) of the box.

[0019] In any case, at the level of the opening of the box, flanges (12) are established, either centered on the end panels and emerging from the corresponding folding strips (6'), or located in the middle area of the side panels (4) and emerging from the corresponding folding strips (6'), destined to fit in dovetail into complementary cut-outs (13) in the lower edge of the end panels (3) or in the lower edge of the side panels (4).

[0020] Especially in boxes of large size such as the one represented in figure 3, flanges (14) may also exist as a superior prolongation of the vertex likewise superior and free of the prolongations (5) of the end panels, which are complementary of the flanges (12) that exist in this latter, which in turn fit into complementary cut-outs (15) of the lower edge of the side panels (4) thus attaining six dovetail coupling points in the stacking between boxes, which improve the lateral stability for them.

Claims

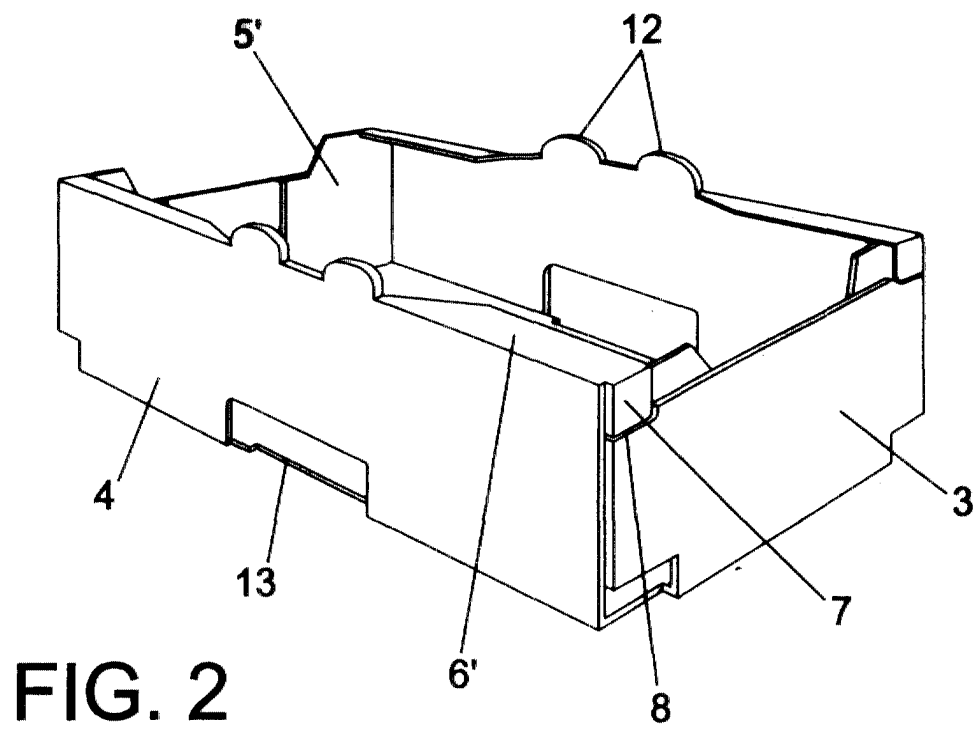
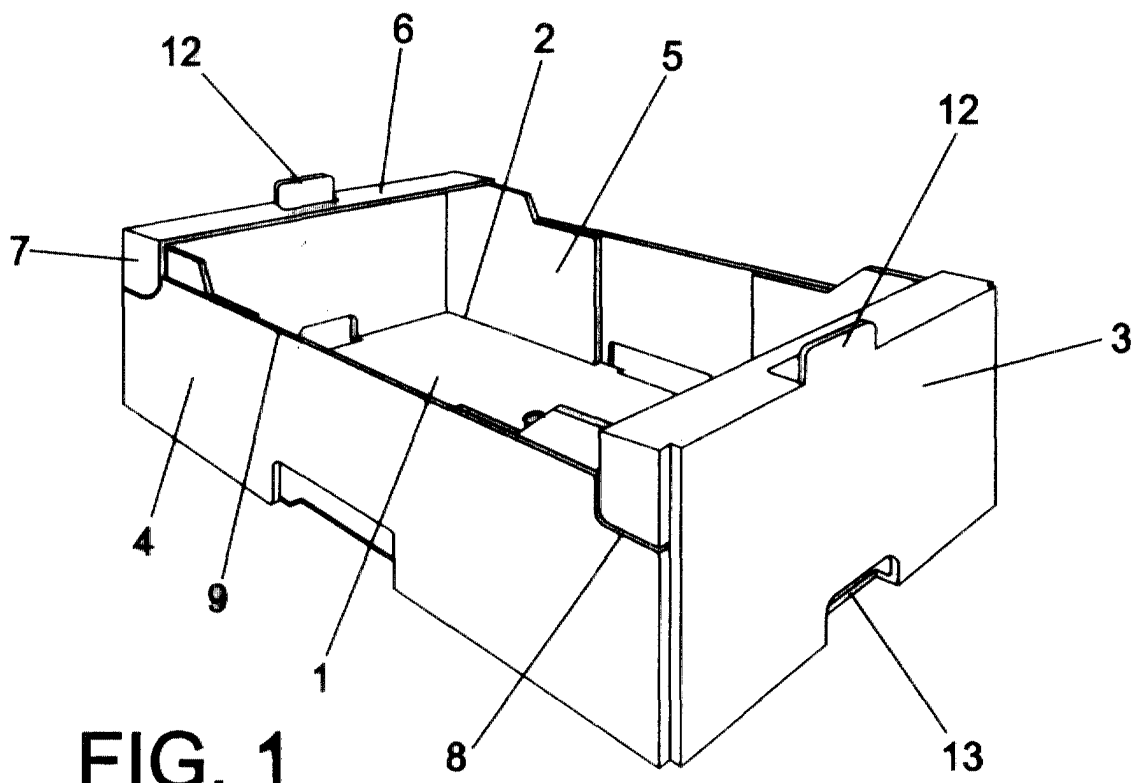
1. Cardboard box for the transport of horticultural products, of the type constituted by means of a laminated body, preferably of cardboard, properly stamped to configure in it a central sector constitutive of the bottom of the box with which are related, by means of folding lines, sectors constitutive of its end panels and its side panels, **characterized in that** either its end panels (3) or its side panels (4) incorporate, as a prolongation of them, a strip (6-6') which folds toward the imaginary plane correspond-

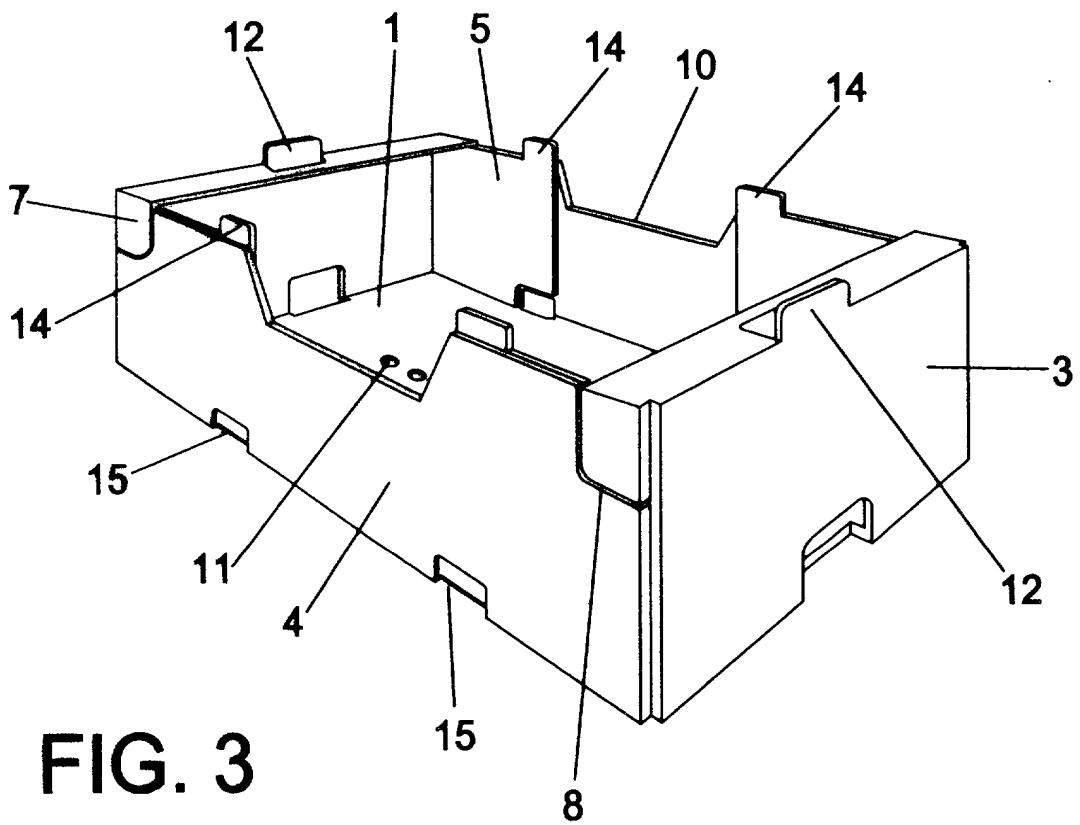
ing to the opening of the box, a strip which in turn has end prolongations determinant of fins (7) that fold over the external face of the prolongations (5) of the end panels, to which they fasten by means of adhesive, with said fins remaining fitted into complementary cut-outs (8) established in the first case in the side panels (4) and in the second in the end panels (3), so that fins (7) and side panels (4) in one case, and end panels in another, result coplanar and establish a surface continuity.

2. Cardboard box for the transport of horticultural products, according to claim 1, **characterized in that** the elements that carry the folding strips (6-6'), in one case the end panels and in another the side panels, are oversized in height with respect to the other elements, in the first case the side panels (4) and in the second case the end panels (3), in order to define, in the stacking between boxes, ample lateral airing windows for the interior of the boxes.
3. Cardboard box for the transport of horticultural products, according to previous claims, **characterized in that** in boxes of large size the end panels (3) and the side panels (4) are of coincident height and the airing windows are attained by means of ample cut-outs (10) operatively practiced in the upper edge of the side panels (4), with which openings (11) are susceptible of collaborating, in turn practiced in the bottom (1) of the box.
4. Cardboard box for the transport of horticultural products, according to previous claims, **characterized in that** either the end panels (3) or the side panels (4), in any case the elements carrying the folding strips (6-6'), prolong on top into flanges (12), complementary of cut-outs established in the lower edge of the elements, determinant of a dovetail coupling in the stacking between boxes, which ensures lateral stability for them, having provided that in large size boxes there may also exist flanges (14) emerging from the upper vertex free from the prolongations (5) of the end panels (6), in turn destined to fit into complementary cut-outs (15) of the lower edge of the side panels (4), in order to increase the number of dovetail coupling points between boxes.

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EUROPEAN SEARCH REPORT

Application Number
EP 00 50 0245

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.7)
X	DE 34 38 685 A (MARALDI RINO) 9 May 1985 (1985-05-09)	1, 4	B65D5/00
Y	* figures 1,2 *	3	
X	US 5 971 906 A (HERRIN ROBERT M ET AL) 26 October 1999 (1999-10-26) * figures 3,4 *	1, 2, 4	
Y	US 3 934 790 A (EASTER AVARD JOSEPH) 27 January 1976 (1976-01-27) * figure 1 *	3	
A	FR 1 269 909 A (GIRARD) 22 December 1961 (1961-12-22) * figure 5 *	4	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			B65D
Place of search THE HAGUE		Date of completion of the search 17 April 2001	Examiner Bridault, A
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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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 00 50 0245

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
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17-04-2001

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 3438685 A	09-05-1985	IT 1195424 B ES 282298 U GR 80744 A NL 8403253 A	19-10-1988 01-05-1985 30-01-1985 17-05-1985
US 5971906 A	26-10-1999	US 5782732 A	21-07-1998
US 3934790 A	27-01-1976	NONE	
FR 1269909 A	22-12-1961	NONE	