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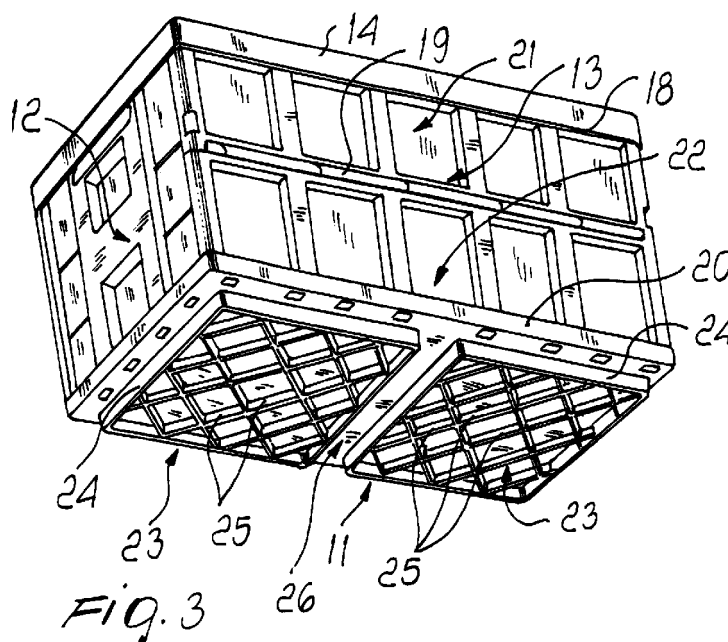
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(54) **Crate for containing commercial products**

(57) A crate for containing commercial products, of the type constituted by a bottom (11) from which longitudinal (13) and transverse (12) foldable or rigid walls protrude which are provided with a border (14) in an upward region. The bottom (11) of the crate (10) has at least two resting surfaces (23) which protrude outward from it and define between them a transverse interspace (26) which is complementarily shaped, in terms of width, with respect to twice the width of the upper bor-

der (14) of the longitudinal walls (13). The at least two resting surfaces (23) are shaped so that when the crate (10) is stacked transversely on top of at least two other crates (10) of the same type the resting surfaces (23) are arranged inside the corresponding upper border (14) of the end (12) and side (13) walls of the at least two other crates (10).



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Description

[0001] The present invention relates to a crate for containing commercial products which can be both loose goods or packages for sale.

[0002] Crates are currently used mainly for carrying and storing products and can be of a wide range of kinds, for example made of throwaway wood, wood and cardboard or plastics.

[0003] Since the material of these latter does not deteriorate and is neutral with respect to the organoleptic characteristics of the contained products, plastic crates have the advantage of being recyclable a certain number of times.

[0004] Plastic crates currently in use are mostly made of polyethylene.

[0005] As regards stacking, the structure of the crates is usually such as to allow stable one-on-one stacking thereof.

[0006] It is also important to note that some kinds of commercially available crates allow to considerably reduce their dimensions when empty by allowing to fold them closed.

[0007] In fact said crates have walls which can be folded inward or outward thanks to the presence of hinges, for example of the deformation type, or of metallic inserts.

[0008] Some loose products are often carried and stored by using pallets on which a plurality of crates are stacked, the products being arranged in said crates.

[0009] Lift trucks are used to move the pallets, but in order to ensure that the stack of crates is adequately stable during movements/lifting, said crates are held together by wrapping them appropriately with a plastic film (for example cellophane) or with a tape.

[0010] Only in this way the stack of crates can withstand the stresses affecting it during movements.

[0011] However, it is evident that this additional operation of wrapping the crates with the film, which is indispensable for the stability of the stack, requires the intervention of a person as well as some time to perform it, with consequent additional costs which at the end of the process affect the sale price of the end products.

[0012] The aim of the present invention is to provide a containment crate for commercial products which solves the above drawback suffered by conventional crates.

[0013] Within the scope of this aim, an important object of the present invention is to provide crates which allow not only simple one-on-one stacking but also the stacking of one crate transversely above two or more crates of the same type.

[0014] Another important object of the present invention is to provide crates for containing commercial products which can be simply stacked on pallets, without having to be wrapped by a film or a tape, yet ensuring maximum stability also during the movements of the pallets.

[0015] Another object of the present invention is to provide a crate for containing commercial products, which has reduced dimensions in the closed configuration.

[0016] Another object of the present invention is to provide a containment crate which can be obtained at costs which are fully comparable with those of conventional crates.

[0017] Another object of the present invention is to provide a crate for containing commercial products whose capacity is fully comparable with that of currently commercially available equivalent crates.

[0018] These and other objects which will become better apparent hereinafter are achieved by a crate for containing commercial products, of the type constituted by a bottom and by end and side walls, either foldable or fixed, which are provided with a border in an upward region, said crate being characterized in that said bottom has, at the outer face, at least two protruding resting surfaces which define between them a transverse interspace which is recessed and complementarily shaped, in terms of width, with respect to twice the width of the upper border of the side walls, said at least two resting surfaces being shaped so that when the crate is stacked transversely on top of at least two other crates of the same type said surfaces are arranged inside the corresponding upper border of said end and side walls of said at least two other crates.

[0019] Further characteristics and advantages of the present invention will become better apparent from the following detailed description of a preferred embodiment thereof, illustrated only by way of non-limitative example in the accompanying drawings, wherein:

Figure 1 is a perspective view of a crate for containing commercial products according to the present invention;

Figure 2 is a perspective view of the crate of Figure 1 in the closed configuration;

Figure 3 is a bottom perspective view of the crate of Figures 1 and 2;

Figure 4 is a perspective view of a set of crates according to the invention, stacked on a pallet;

Figure 5 is a transverse sectional view of a detail of two crates of Figure 4.

[0020] With reference to the above figures, a crate for containing commercial products according to the present invention is generally designated by the reference numeral 10 and comprises a bottom 11 which in this case has a rectangular shape.

[0021] The crate 10 has end walls 12 at its shorter sides and has, at its longer sides, side walls 13 which will be described in greater detail hereinafter.

[0022] In the upper part, said end and side walls 12 and 13 are kept joined by a single border 14 which has a frame-like configuration.

[0023] Proximate to said border 14, each one of

said end walls 12 is provided with a grip slot 15.

[0024] In this case, said crate 10 is of the type with folding walls.

[0025] Said end walls 12 in fact have, at the border 14, first hinges which are schematically designated by the reference numeral 16.

[0026] Said first hinges 16 allow the end walls 12 to rotate, moving toward the inside of the crate 10, as shown by the arrow 17, from the vertical position until they reach a horizontal position (turned through 90° with respect to the initial position) so as to lie above said bottom 11 and parallel thereto.

[0027] Correspondingly, said side walls 13 have second, third and fourth hinges, designated by the reference numerals 18, 19 and 20 respectively, which are located at the border 14, at the centerline part of said walls 13 and at the region where said walls are connected to the bottom 11.

[0028] Said second, third and fourth hinges 18, 19 and 20 form as a whole, on each side wall 13, an upper wall half 21 and a lower wall half 22.

[0029] Once the end walls 12 have been turned inward until they assume the horizontal position, said second, third and fourth hinges 18, 19 and 20 allow to close the two side walls 13 in an accordion-like fashion, so as to allow the lower wall half 22 to rest on the bottom 11 and allow the upper wall half 21 to be arranged on top of it.

[0030] Once this has been done, the crate 10 is in the closed configuration and has the appearance shown in Figure 2, since due to the accordion-like folding of the side walls 13 the end walls 12 rest on them.

[0031] In this constructive configuration, two resting surfaces 23 protrude from the bottom 11 at the outward face, each surface being constituted by a raised frame 24 whose shape and dimensions are complementary to the border 14 of the end walls 12 and side walls 13 so as to be internal to said border.

[0032] Each one of said resting surfaces 23 is provided with stiffening ribs 25 which also protrude inside the frame 24 and are adapted to increase the resting stability of the crate 10.

[0033] It is particularly important to stress that an interspace 26 is defined between said two resting surfaces 23, is recessed with respect to said surfaces 23, and is formed transversely between them.

[0034] As regards its dimensions, said interspace 26 is twice as wide as the frame-like border 14 of the side walls 13 of the crate.

[0035] In this manner, in practice each crate 10 can be stacked transversely on top of two other crates 10 of the same type, taking care to place the borders 14 of the side walls 13 in the hollow formed by the interspace 26, as shown in Figure 5, since the depth of said interspace is sufficient to ensure stability of the stack.

[0036] In this manner it is possible to stack a plurality of crates 10 on a pallet 27, taking care to arrange them appropriately so as to achieve a level of stability

that is sufficient to allow any movement of the pallet 27.

[0037] In particular, in this constructive configuration the dimensions of each crate 10 are such that three of them allow to occupy substantially completely a standard-size pallet 27 with a first "layer".

[0038] In practice it has been observed that the present invention has achieved more than satisfactorily the aim and all the intended objects.

[0039] A very important advantage has in fact been achieved by the present invention in that crates have been provided which allow not only simple one-on-one stacking but also stacking of one crate transversely on top of two or more crates of the same type.

[0040] Another advantage has been ensured in view of the fact that crates for containing commercial products have been provided which can be stacked on pallets in a simple manner, without having to be wrapped by a film or tape, while ensuring maximum stability also during pallet movements.

[0041] It is also noted that a crate for containing commercial products has been provided which has compact dimensions in the closed configuration.

[0042] Another very important advantage relates to the fact that a containment crate has been provided which can be obtained with costs which are fully comparable with those of conventional crates.

[0043] Finally, it is important to note that the present invention provides a crate for containing commercial products whose capacity is fully comparable with that of currently commercially available equivalent crates.

[0044] The present invention is susceptible of numerous modifications and variations, all of which are within the scope of the same inventive concept.

[0045] All the details may be replaced with other technically equivalent elements.

[0046] The materials employed, so long as they are compatible with the contingent use, as well as the dimensions, may be any according to requirements.

[0047] The disclosures in Italian Utility Model Application No. PD99U000050 from which this application claims priority are incorporated herein by reference.

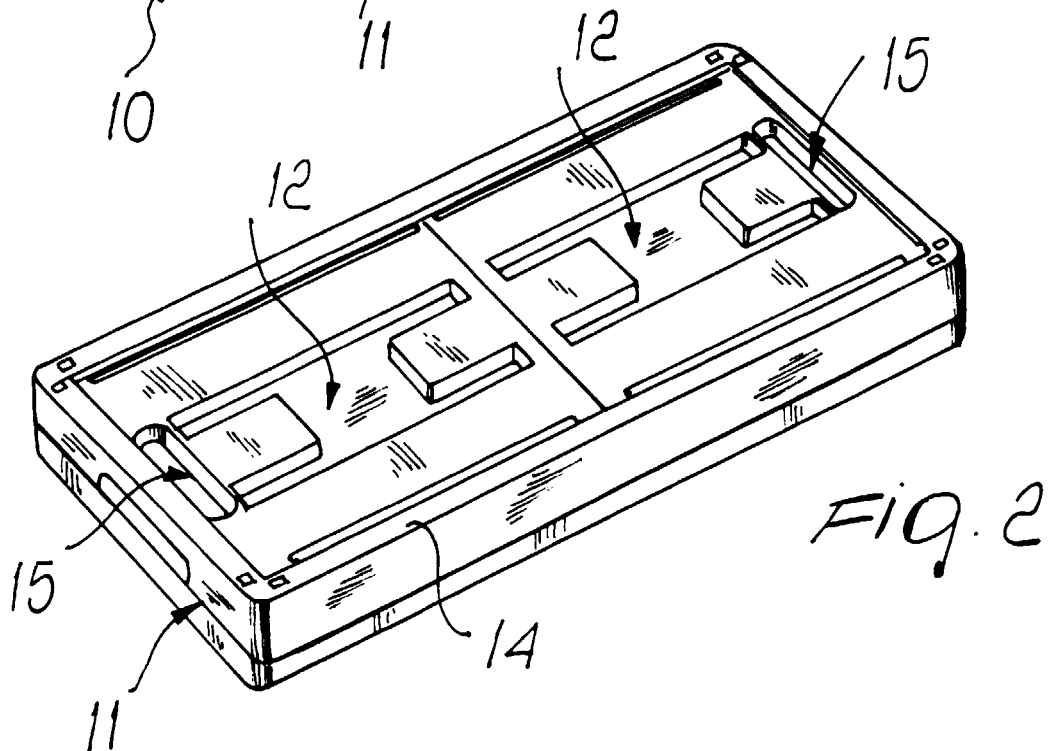
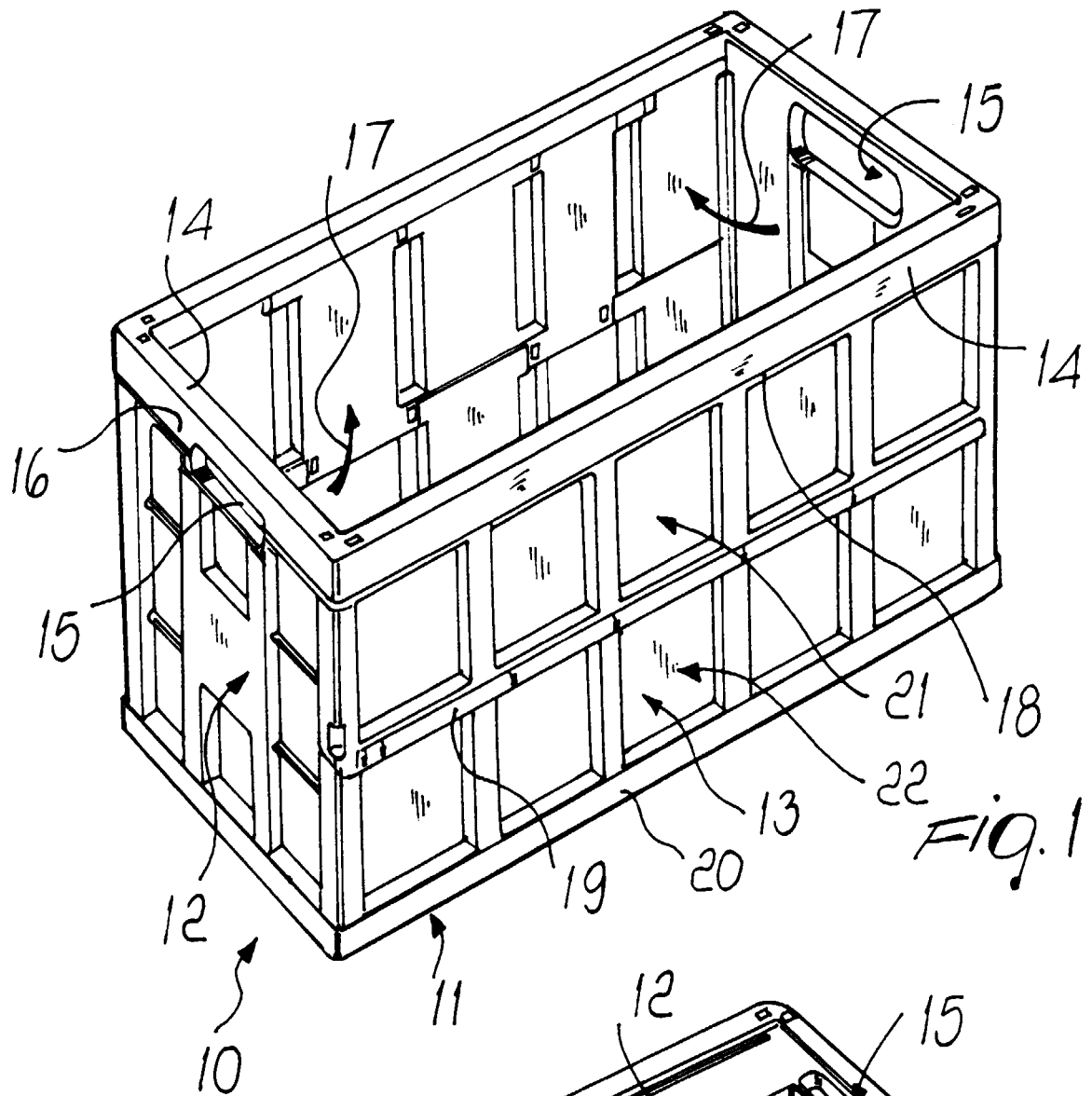
[0048] Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly, such reference signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference signs.

Claims

1. A crate for containing commercial products, of the type constituted by a bottom (11) and by foldable or rigid end (12) and side (13) walls which are provided with a border (14) in an upward region, said crate (10) being characterized in that said bottom (11) has, at the outer face, at least two protruding resting surfaces (23) which define between them a

transverse interspace (26) which is recessed and complementarily shaped, in terms of width, with respect to twice the width of the upper border (14) of the side walls (12), said at least two resting surfaces (23) being shaped so that when said crate (10) is stacked transversely on top of at least two other crates (10) of the same type said surfaces (23) are arranged inside the corresponding upper border (14) of said end (12) and side (13) walls of said at least two other crates (10).

2. The crate according to claim 1, characterized in that said end (12) and side (13) walls are foldable.
3. The crate according to claim 2, characterized in that said end walls (12) have first hinges (16) at the upper border (14), said end walls (12) being adapted to rotate by moving toward the inside of said crate (10) from the vertical position until they reach a horizontal position which is rotated through 90°.
4. The crate according to claim 3, characterized in that said side walls (13) have second (18), third (19) and fourth (20) hinges which are located respectively at the upper border (14), at the centerline part and at the region for connection to said bottom (11), so as to form an upper wall half (21) and a lower wall half (22), said second, third and fourth hinges (18,19,20) allowing, once said end walls (12) have been rotated into a horizontal position, to close said side walls (13) in an accordion-like fashion so as to rest the lower wall half (22) on the bottom (11) and arrange said upper wall half (21) above it.



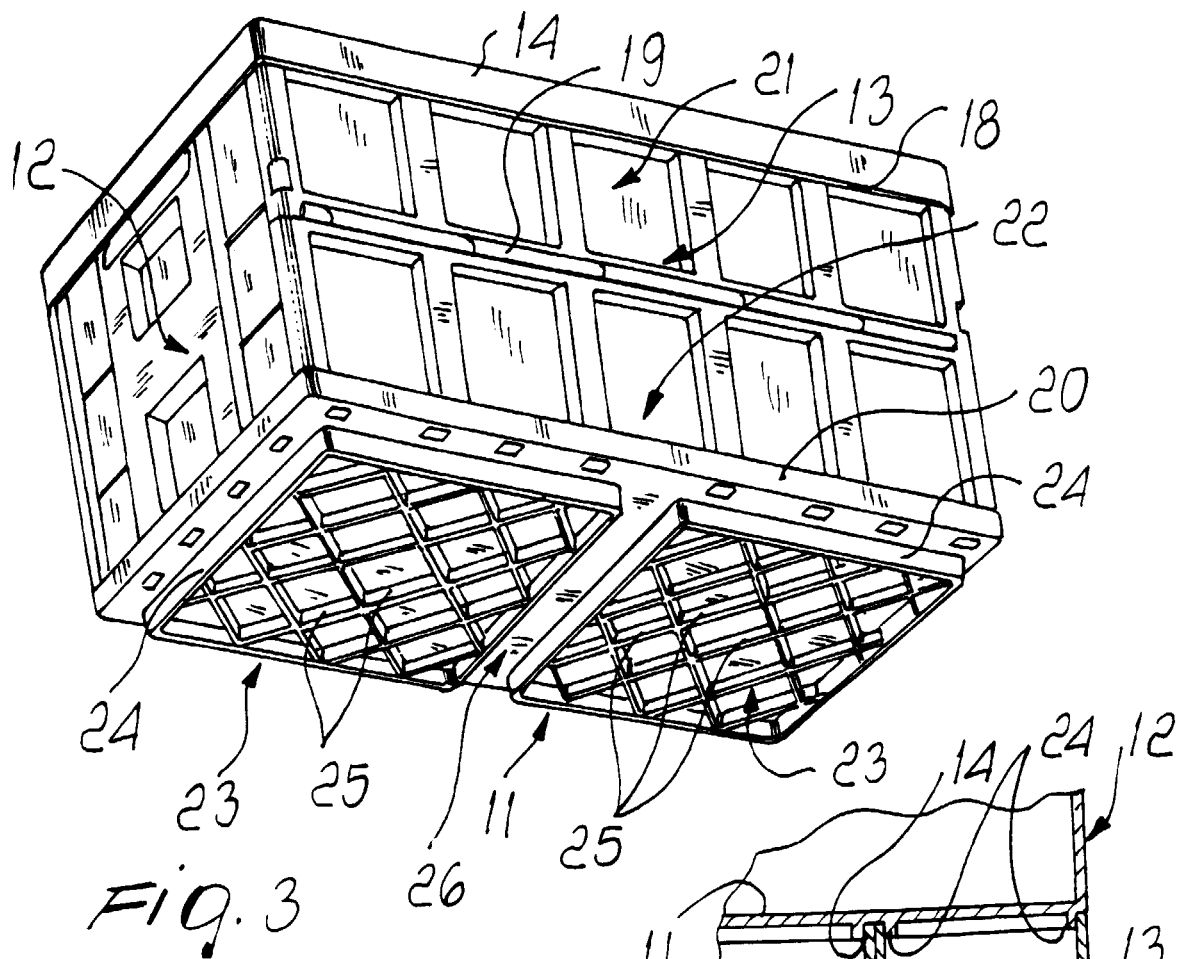


Fig. 3

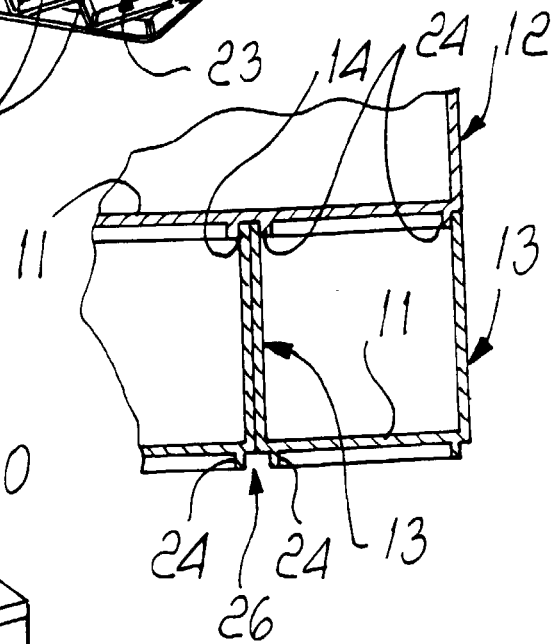


Fig. 5

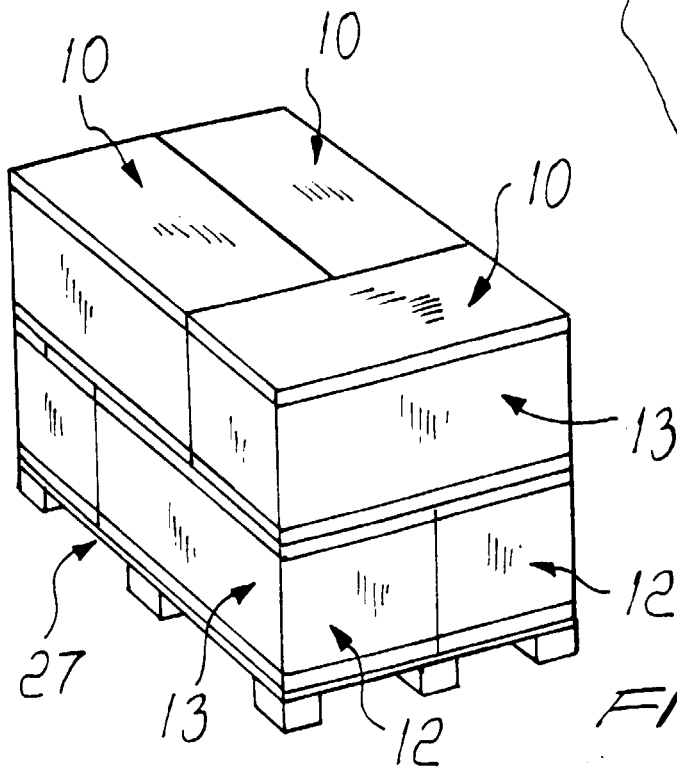


Fig. 4



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EUROPEAN SEARCH REPORT

Application Number
EP 00 10 8079

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	US 3 796 342 A (SANDERS E ET AL) 12 March 1974 (1974-03-12) * column 2, line 22 - column 3, line 2; figures 1-3,9 *	1-4	B65D6/16 B65D21/02
A	FR 2 043 905 A (STAMP) 19 February 1971 (1971-02-19) * page 2, line 8 - line 14; figure 4 *	1-4	
A	EP 0 252 017 A (COSENTINO GIUSEPPE) 7 January 1988 (1988-01-07) * page 5, line 4 - page 6, line 29; figures 1-3 *	1-4	
A	GB 1 137 916 A (INDUSTRIAL MOULDINGS) * page 2, line 120 - page 3, line 75; figures 1-3 *	1-4	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			B65D
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
BERLIN		3 July 2000	Olsson, B
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
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EP 00 10 8079

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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03-07-2000

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 3796342 A	12-03-1974	CA 953691 A	27-08-1974
		GB 1365045 A	29-08-1974
		US 3870185 A	11-03-1975
FR 2043905 A	19-02-1971	NONE	
EP 0252017 A	07-01-1988	IT 210873 Z	11-01-1989
GB 1137916 A		NONE	

EPO FORM P0459

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