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(54) REINFORCEMENT FOR PALLET STRINGERS

(57) The reinforcement is conceived for pallets in which, both its loading platform (3) and its lower skids (2) are made of cardboard. The reinforcement consists of a grooved profile (1), cross-sectionally "U"-shaped, the middle branch of which presents an amplitude that complies with the width of the skids (2), the length of which coincides with that of the actual pallet and the side branches of which present a considerable less height that that of the skids (2). The reinforcement, of laminated cardboard, extends along the whole length of the pallet body, both, when its skids also do so, or when the skids are discontinuous.

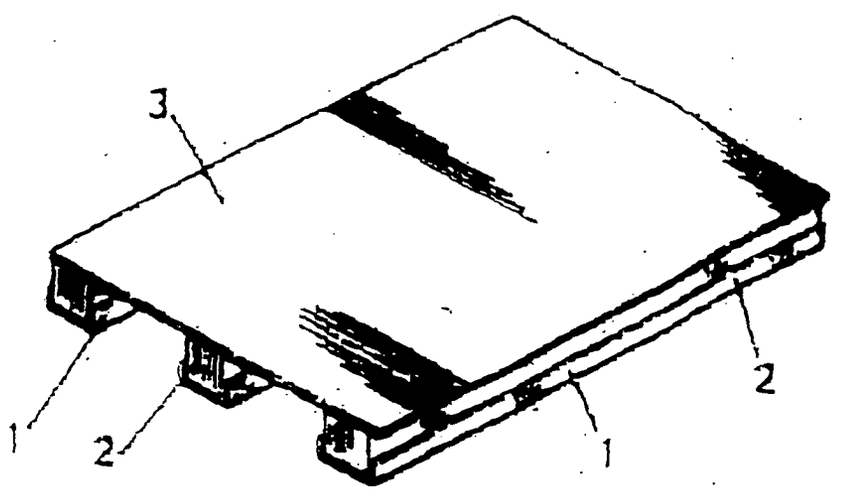

FIG. 3

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Description

OBJECT OF THE INVENTION

[0001] The present invention refers to a reinforcement that has been specially conceived for support skids incorporated in pallets, with the purpose of conveniently distancing the loading platform in relation to the support plane so as to permit the insertion of the fork of a transpallet or forklift.

[0002] The invention is specifically conceived for cardboard pallets and their purpose is to stiffen their skids, increasing their flexure strength.

BACKGROUND OF THE INVENTION

[0003] The use of cardboard pallets is increasingly more and more generalized, due, both to economic and to environmental conservation reasons, understanding as cardboard, to be a material constructed with recycled or non recycled fibres though always recyclable.

[0004] The cardboard pallets offer advantages, versus the original wooden pallets, that are mainly centred in terms of weight and capability of recycling, and other additional conditions intervene in its increasing use, such as the requirements imposed by various countries that demand fumigation against insects of any wooden pallet before entering in the same, which occurs for example in Australia and in the U.S.

[0005] As is known, the most critical item of each cardboard pallet are the skids which are situated below the surface or loading platform of the pallet and which, as has already been pointed out previously, have the purpose of facilitating access with a transpallet or forklift from two or four sides of the pallet.

[0006] For the obtention of these skids, one of the most common solutions consists in creating cardboard cylinders, based on the spiral twining of this material, these cylinders housing in alignment inside a prismatic, rectangular envelope, these cardboard cylinders being continuous or discontinuous depending on whether access for the transpallet or forklift shall be established between them.

[0007] In any case, this solution, which offers great compression strength, presents an important limitation in terms of flexure strength, this problem being more accused in the pallet skids that offer access from their four sides, and especially, when the pallet has been placed on a shelf with only two supporting points.

DESCRIPTION OF THE INVENTION

[0008] The reinforcement proposed by the invention, applicable to skids such as those that have been previously indicated, or with any other type of structure, as for example tubular cylinders or others, very considerably increases the pallet flexure strength, the pallet keeping its benefits intact from the point of view of lightness and capability of recycling.

[0009] To achieve this, and more specifically, said reinforcement consists of a "U"-shaped configuration profile, based on laminated cardboard, in which multiple cardboard sheets are joined together by means of adhesive bonding or by means of heat fusion thanks to the plastic polymer layer that each cardboard sheet may be provided with.

[0010] The thickness of said profile may be in the range of 2 and 10 mm, depending on the pallet characteristics from the point of view of its use, its width shall comply with the width of the pallet skid to which it is intended for, and its height shall be in the range of 10 and 20 mm, so that this reduced height makes possible the penetration of transpallet or forklift arms, on the side of the skid when said skid is discontinuous to that effect.

[0011] The reinforcement is preferably attached to the skid by means of adhesive, both through its middle branch and through its side or vertical branches, additionally applying pressure on the skid and reinforcement, both in vertical and in transversal direction.

DESCRIPTION OF THE DRAWINGS

[0012] Complementary to the description in this document, and with the object of aiding to a better understanding of the characteristics of the invention according to an exemplary practical embodiment of the same, a set of drawings have been included, forming integral part of said description, in which, with illustrative and non limitative character, the following have been represented:

Figure 1 shows, according to a perspective view, reinforcement for pallet skids, embodied according to the object of the present invention.

Figure 2, shows a schematic, partial and cross sectional detail of the laminar structure of the reinforcement of the previous figure.

Figure 3 shows the reinforcement of the previous figures, duly coupled to pallet skids, specifically of a pallet having exclusive accessibility through two of its sides.

Figure 4 shows a representation similar to the one in the previous figure though corresponding to a pallet with access through its four sides.

PREFERRED EMBODIMENT OF THE INVENTION

[0013] In view of the above figures, and more specifically, of Figure 1, it can be observed how the reinforcement proposed by the invention consists of a "U"-shaped cross sectional profile (1), the middle branch of which corresponds to the actual reference (1), having a longitudinal width that coincides with that of the pallet

(3) skids (2) to which it is intended, while its side branches (4) present a height in the range of 10 and 20 mm, that is to say, considerably less than the height of the pallet (3) skids (2), which, when it involves a pallet (3') with discontinuous skids (2'), in which, in principle the accessibility is defined through the four pallet edges or sides, over the profile (1), permits the establishment of openings (5) between this and the loading platform (3'), said openings being of excessively sufficient amplitude to allow the access of transpallet or forklift arms.

[0014] Said profile (1), with a wall thickness in the range of 2 and 10 mm, is obtained as from a laminated cardboard, as is specially observed in the detail of Figure 2, based on a plurality of cardboard (6) sheets that may be joined together by means of adhesive bonding, or else by means of heat fusion, thanks to a plastic polymer layer that each cardboard sheet (6) may be provided with.

[0015] By means of the laminar structure for profile (1), a high mechanical flexure strength of the same is achieved, which is transmitted to the pallet skids and consequently to the latter as a whole, and that results to be specially appropriate in the case of discontinuous skids, as is shown in Figure 4, in which the reinforcement acts as a union bridge for the different segments (2') of the skid at its bottom level, constituting an attachment parallel to that of the actual loading platform (3'), but without a negative repercussion in the possibility of access for the forklift or transpallet arms through the actual discontinuous skids, thanks to the reduced height of the reinforcement, that leaves the apertures (5) free for the passage of said arms.

[0016] As can be understood from the previous description, the reinforcement proposed by the invention is applicable to pallets (3) having any type of structure and configuration for its skids (2-2').

Claims

1. Reinforcements for pallet skids, which being specially conceived for pallets on which both its loading platform and its bottom skids are of cardboard, understanding by this to be any material made from recycled and non recycled fibres, though always recyclable, and in which said skids, with any structure, may be continuous or discontinuous depending on whether access to the arms of a transpallet or forklift, from two to four sides of the pallet has been provided, is **characterized in that** it is constituted as from a "U"-shaped configuration profile, based on laminated cardboard, in which the amplitude of its middle branch complies with the width of the pallet skids it is intended for, while the height of its side branches is considerably less than the height of said skids, its length coinciding with that of the actual pallet.

2. Reinforcements for pallet skids, according to Claim 1, **characterized in that** the height of the "U"-shaped profile side branches is in the range of 10 and 20 mm, so that in the case of pallets with discontinuous skids, apertures with sufficient dimension for passage of transpallet or forklift arms are defined between the "U"-shaped profile and the loading platform of the pallet in correspondence with the skids interruption zones.

3. Reinforcements for pallet skids, according to the previous Claims, **characterized in that** the "U"-shaped profile wall thickness is in the range of 2 and 10 mm and the cardboard sheets, that constitute said wall are joined to each other by means of adhesive bonding or by means of heat fusion thanks to a plastic polymer layer that each cardboard sheet may be provided with.

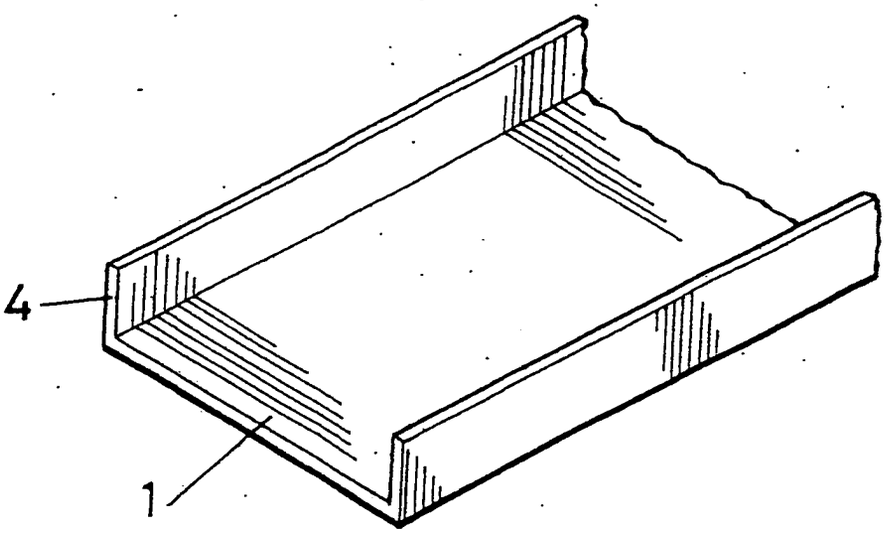

FIG.1

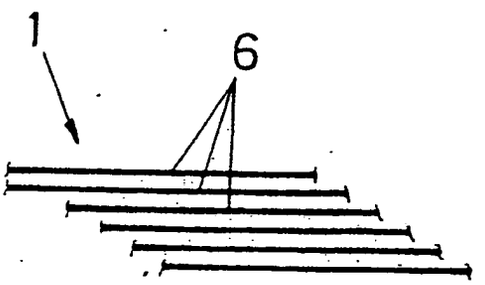

FIG.2

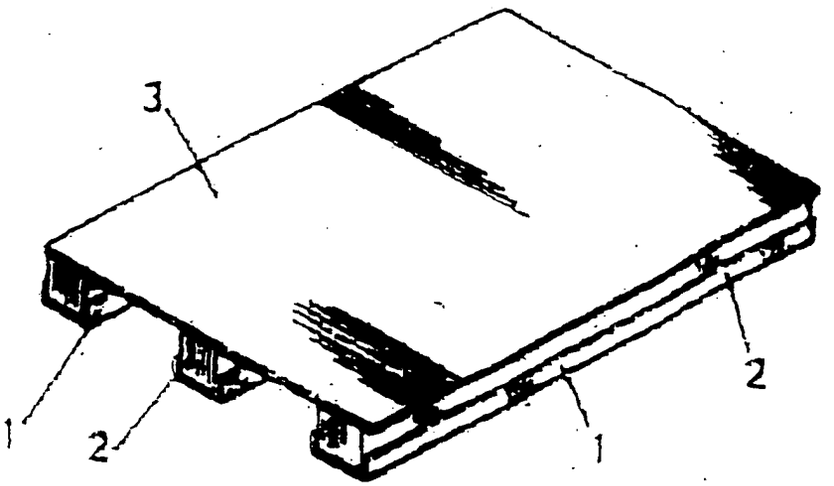

FIG. 3

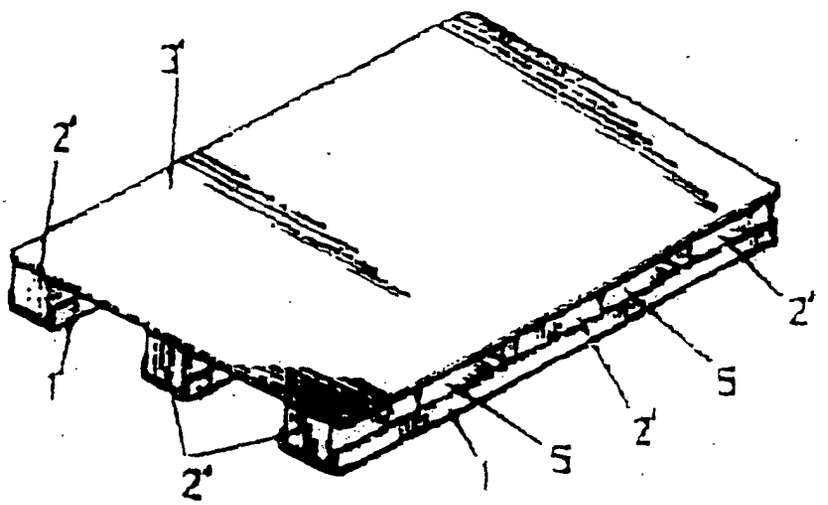

FIG. 4

INTERNATIONAL SEARCH REPORT

International application No.
PCT/ES 03/00290

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 B65D 19/38, B65D 19/34, B65D 19/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 B65D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPODOC, WPIL, PAJ, CIBEPAT

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0878405 A (VIESSMANN GmbH & CO) 18.11.1998. Column 3, líne 39-column 7, líne 5; **figures** 2, 3, 4	1-3
A	EP 134659 A (GROOME, LEEK) 20.03.1985. **page** 5, líne 28- **page** 6, líne 9; **figures** 3-6 .	1-3
A	WO 9529102 A (MCCARTHY) 02.11.1995. **page** 8, líne 13-24; **figures**	1-3
A	WO 9212061 A (WHEELOCK) 23.07..1992. **Abstract and figures**	1
A	US 3026078 A (CONTINENTAL CAN CO) 20.03.1962. **The whole document**	1

☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
09 JUL 2003 (09.07.03)	**18 JUL 2003 (18.07.03)**
Name and mailing address of the ISA/ **S.P.T.O.** Facsimile No.	Authorized officer Telephone No.

Form PCT/ISA/210 (second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/ES 03/00290

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