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(54) **LOADING PLATFORM**

(57) **SUMMARY**

Loading platform, comprising two side-frames (1) and a series of crossbars (2) between them, that are cou-

pled to the side-frames at the ends, through pivots on each one of them which project on the lower part of the ends of each crossbar (2) and are inserted in pairs of cross-aligned holes of the side-frames (1). Figure 1.

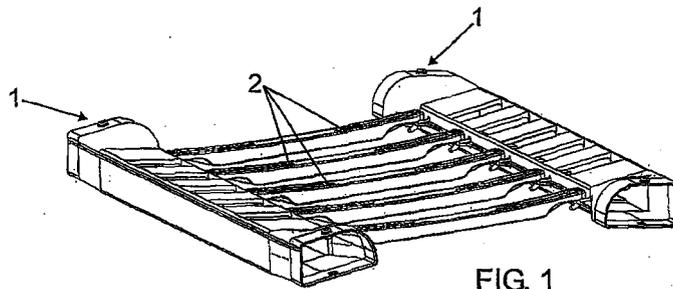
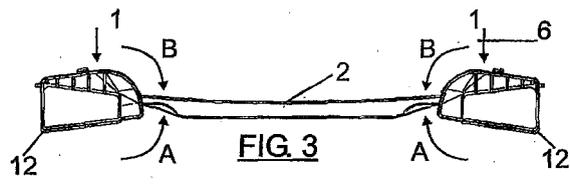


FIG. 1



Description**Field of the invention**

[0001] The present invention refers to a loading platform consisting of two side-frames and a series of crossbars between them.

[0002] The loading platform of this invention is basically conceived for, but not limited to, transport and storage of flexible wall containers, normally used for transporting bulk products.

Background of the invention

[0003] Traditional loading platforms with the side-frames and crossbars forming a solid structure are not suitable for supporting flexible wall containers, which tend to adopt a rounded shape on its supporting base, making its position on the platform and on the stack on the platform relatively unsteady.

[0004] To overcome this drawback, it is possible to use loading platforms or bases consisting of a flexible sheet and a stiffening outer framework, made up of at least two side-frames between which the flexible sheet is secured by two of the opposite rims. In this regard, the utility model 200401750 by the same applicants can be cited.

[0005] This type of platforms have a drawback since the container to be transported rests on the floor, being separated from it by the flexible sheet of the platform only, which may entail a risk for the transportation of certain kind of products, such as food.

Description of the invention

[0006] The object of the present invention is to eliminate the problems herein indicated, using a platform built in such a way that, on the one hand, it can adapt adequately to the bottom of flexible wall containers and, on the other hand, it isolates and separates the bottom of the container from the floor so that there is no risk of contamination of the product being transported.

[0007] Furthermore, the platform of the invention can be easily loaded and unloaded without any auxiliary or fixing elements. Moreover, the platform can be dismantled or assembled in a steady stacked position for storage or no-load transportation.

[0008] The platform of the invention is of the kind previously indicated, comprising two parallel side-frames and a series of crossbars between them. In the platform of the invention the side-frames and crossbars are independent elements, the crossbars being pivoted to the side-frames at the ends.

[0009] To that end, the side-frames have, on their opposing sides, projecting lugs cross-aligned in pairs to both side-frames and an approximately vertical hole on each lug. As for the crossbars, they have pivots at both ends which can be inserted through the holes of each pair of cross-aligned lugs, thus, coupling the crossbars

to the side-frames.

[0010] In order to prevent the coupling of crossbars and side-frames from being released or loose, both pivots on each crossbar have a design arching to the inside and converge one to the other. Furthermore, the holes and pivots form complementary ring-shaped bases that, when the pivots are fully inserted in the holes, said bases rest one on the other to incline the side-frames upwards on the internal side, thus, raising the crossbars over the bolster determined by the side-frames.

[0011] With this construction a steady assemble is achieved, since due to the inclination and arching of the crossbar pivots and the base between the pivots and side-frame holes, it is ensured that, once the pivots are inserted in the holes of the side-frame lugs, a safe assembly is achieved, which prevents accidental severing of the components.

[0012] Moreover, because of the cross-inclination effect of the side-frames, the crossbars are higher than the bearing surface, i.e. the side-frames do not rest on the floor, forming a structure that will elastically twist out of shape because of the load borne. This deformation will cause the crossbars to subside until they rest on the bearing surface, either on the floor or on top of another stacked container. This allows the platforms to adapt perfectly to the bottom of flexible wall containers.

[0013] The side-frame lugs and the crossbars are located behind the upper surface of the side-frames, so that when a container is placed on the platform, it will not hinder the deformation of said platform, allowing it to adapt to the bottom of the container.

[0014] The crossbars have a transversal section that is less tall than the side-frames and they finish off in ends that are less tall and have pivots protruding on the inner side. The side-frames, except for its ends, will be tall enough so that when the platform is loaded and deformed, the container will be isolated from the floor, thus avoiding contamination of the product stored in it.

[0015] The platform of the invention is stackable and the side-frames can be supported successively one on top of the other. For this position to be steady, these side-frames have an upper and lower surface with holes and pivots that can be piled up so as to face one another, when several platforms are stacked.

[0016] In order to facilitate the handling of the platform, the side-frames will be built with tubular sections, through which the arms of a hand truck may be inserted. Furthermore, the sections will have openings in their upper and lower walls for the wheels supporting the arms to come out, for example, the wheels of a kind of hand truck called "pallet jack", which has wheels on its arms.

Brief description of the drawings

[0017] All the features and advantages described, as well as others that characterize the invention, will be better understood with the following description, with reference to the attached drawings, where an example of a

possible but not limiting embodiment is shown.

[0018] In the drawings:

Figure 1 shows a perspective view of the loading platform from above, built according to the invention. Figure 2 shows an upper base of the platform shown on figure 1.

Figure 3 shows a vertical frontal view of the same platform.

Figure 4 shows a perspective view of one of the side-frames that form the platform.

Figure 5 shows a vertical frontal view of one of the crossbars of the platform.

Figure 6 shows a perspective and detailed view of the connection or coupling of the crossbar and the side-frame.

Figure 7 shows a similar view to that of figure 6, with the end of the side-frame and crossbar dismantled.

Figure 8 shows a perspective view of the connection of figure 6 between the side-frame and crossbar, from below.

[0019] Figure 1 shows a platform comprising two parallel side-frames, indicated as number 1, and a series of crossbars 2 between them.

[0020] As it can be seen in figure 4, each side-frame 1 has an approximately trapezoidal tubular section, finished off with head ends 3 with a bigger rim, which project up and down over the trapezoidal section, as it can be seen in figure 3. On the internal wall of the side-frames 1, which corresponds to the smaller side of the trapezoidal section, there are protruding lugs 4 that face one another on both side-frames, and each one has a vertically-shaped through hole.

[0021] The side-frames 1 also have upper and lower openings 5 on their walls. On the heads 3, the side-frames have an upper pivot 6 and a lower hole 7, which can face each other if two or more platforms are piled up one on top of the other, to secure this position.

[0022] The crossbars 2 are independent pieces of the side-frames and, as it can be seen in figure 5, they have pivots 8 at their ends leaning towards the inside and slightly converging to one another. These pivots are bigger at their base, where they form a complementary base 9 with a base 10 of the holes 11 in the lugs 4, as it can be seen in figure 7.

[0023] In order to assemble the platform with the elements indicated, the pivots 8 of each crossbar 2 are introduced in each pair of holes 11 corresponding to the lugs 4 cross-aligned on the side-frames 1, which results in the structure shown in figures 1 to 3.

[0024] As it can be seen in figure 3, when the platform is assembled the side-frames 1 are slightly turned in the direction of the A arrows, which causes the elevation of the crossbars 2 over the bolster determined by the longitudinal external edges 12 of the side-frames 1.

[0025] Figure 7 shows the end of a crossbar nearing a side-frame for the assembling of a pivot 8 correspond-

ing to the hole 11 in one of the lugs, until the base 9 of the pivot is resting on the base 10 of the hole 11, thus, connecting both elements, as it can be seen in figures 6 and 8.

[0026] As it can be seen in the drawings, the lugs 4 are fixed at approximately half height of the side-frames 1, so that when the platform is mounted the crossbars 2 are not only separated from the bearing surface of said platform, but also slightly sunk compared to the upper side of the side-frames 1, thus, allowing the bottom to adapt easily to flexible wall containers.

[0027] The crossbars 2 have a shorter section than the side-frames 1 and they also finish off at shorter ends, from which pivots 8 project.

[0028] When a container is placed on the invention platform, the weight of the container will cause the side-frames 1 to turn in the direction of B arrows shown in figure 3, until they are set in the position shown in figure 3a, where side-frames 1 rest on the floor on their lower base and the crossbars 2 also rest on the floor. In this way, a steady supporting base for a flexible wall container 13 is determined. In this position, the bottom of the container 13 is separated from the floor by the crossbars 2 elevation.

[0029] As soon as the platform is unloaded, it will regain the position shown in figure 3 because of the elastic deformation that initially occurred due to the load, both on the crossbars 2 and on the connecting or coupling elements between crossbars and side-frames.

[0030] As it was previously indicated, the tubular structure of the side-frames 1 with the windows or openings 5, makes it possible to manage the platform using a kind of hand trucks known as "pallet jacks" that have wheels on their arms.

Claims

1. Loading platform, comprising two parallel side-frames and a series of crossbars between them, and **characterized by** the coupling of the crossbar ends to the side-frames, through pivots on each one of them that project on the lower part of the ends of each crossbar and are inserted in pairs of cross-aligned holes of the side-frames. Said holes are located on the lugs that project on opposite sides of the side-frames and are cross-aligned in pairs to both side-frames. The pivots are arching towards the inside and converge towards each crossbar. Said pivots and holes form complementary ring-shaped bases that, when the pivots are fully inserted in the holes, rest one on the other and lean the side-frames transversally upwards on the inner side, which causes the crossbars to rise over the bolster determined by the side-frames. Thus, once assembled, the side-frames and crossbars form a structure that elastically deforms due to the load borne, until the crossbars rest on the lower bolster determined by the lower

base of said crossbars.

2. Loading platform according to claim 1, wherein the lugs mentioned before and the crossbars are located under the upper surface of the side-frames. 5
3. Loading platform according to claims 1 and 2, wherein the crossbars have a cross-section that is lower than the side-frames. 10
4. Loading platform according to claims 1 to 3, wherein the crossbars have ends that are lower than the parts with pivots projecting on the lower side 15
5. Loading platform according to claim 1, wherein the side-frames have holes and pivots opposing one another on the upper and lower sides which can be placed one on top of the other when two or more platforms are stacked or piled up. 20
6. Loading platform according to claim 1, wherein the side-frames have tubular sections, through which hand truck arms can be inserted. These sections have openings in their lower and upper walls for the wheels of said arms to come out. 25

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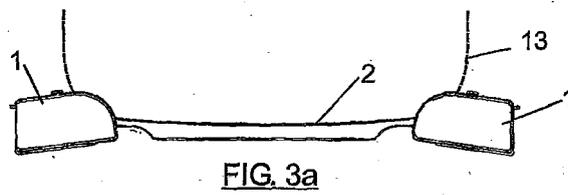
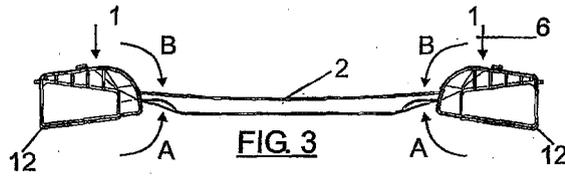
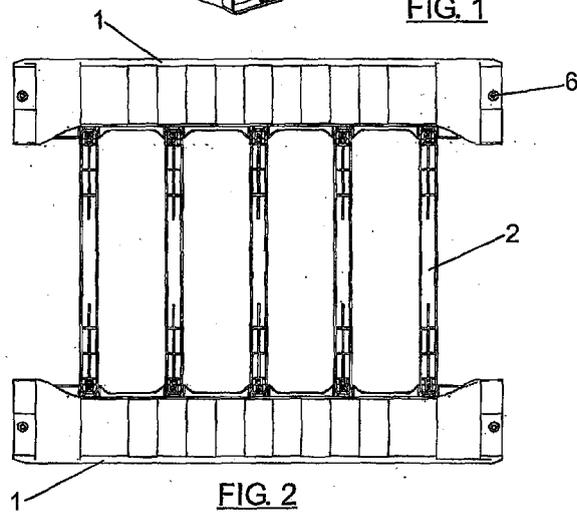
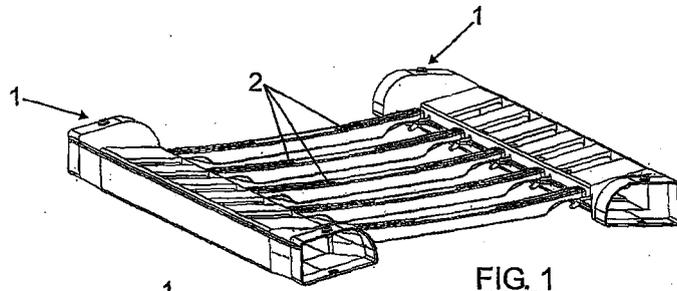
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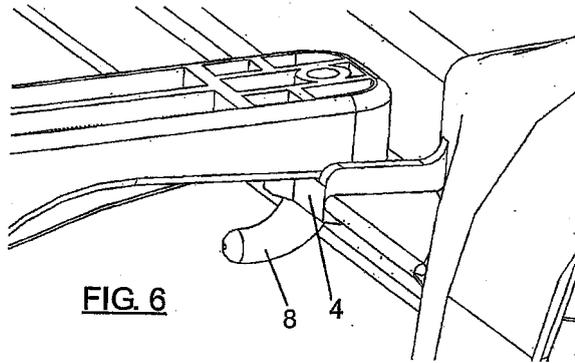
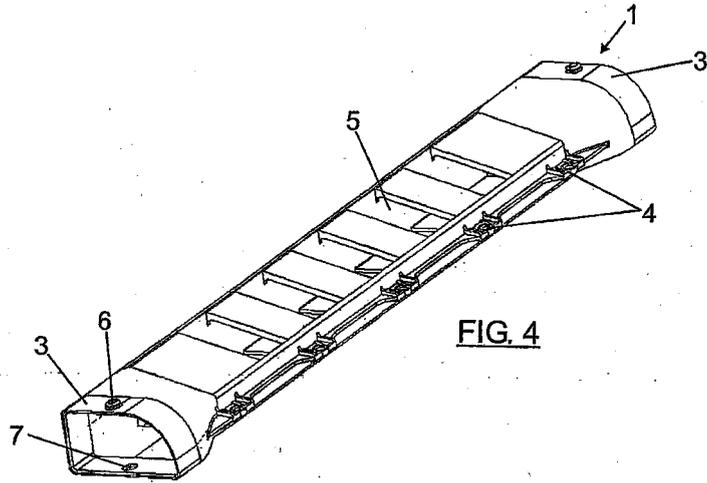
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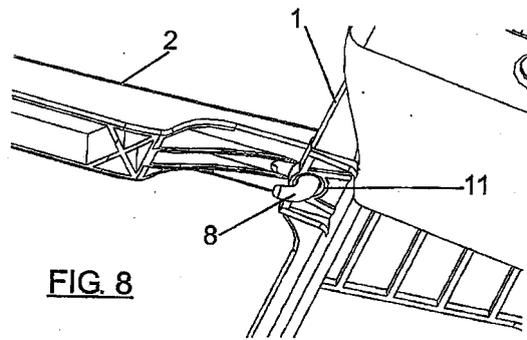
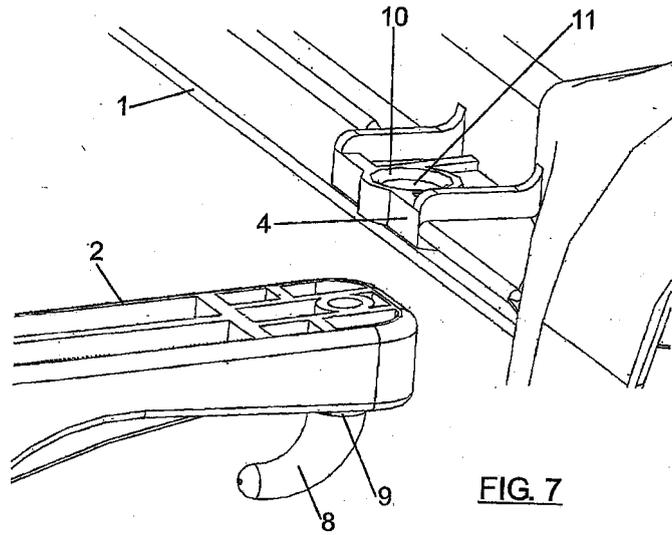
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INTERNATIONAL SEARCH REPORT

International application No.
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A. CLASSIFICATION OF SUBJECT MATTER		
see extra sheet		
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)		
B65D		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
ES		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)		
CIBEPAT,EPODOC,WPI		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2952433 A (JOSEPH et al.) 13.09.1960, the whole document.	1
A	ES 1058117 U (CAMPILLO GONZALEZ) 01.11.2004, the whole document.	1
A	FR 2231575 A1 (THIBAUT) 27.12.1974	
A	CA 2289271 A1 (ROY) 08.04.2001	
A	WO 8906625 A1 (MCPHEE) 27.07.1989	
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.		
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03 July 2007 (03.07.2007)		(27/08/2007)
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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/ ES 2007/000227

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US2952433 3 A	13.09.1960	NONE	-----
ES 1058117 U	01.11.2004	ES 1058117 Y	16.02.2005
FR2231575 5 A	27.12.1974	NONE	-----
CA2289271 1 A	08.04.2001	NONE	-----
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INTERNATIONAL SEARCH REPORT

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