



Europäisches Patentamt
European Patent Office
Office européen des brevets



Publication number: **0 515 578 A1**

EUROPEAN PATENT APPLICATION
published in accordance with Art.
158(3) EPC

Application number: **91909554.7**

Int. Cl.⁵: **B65D 19/26**

Date of filing: **29.04.91**

International application number:
PCT/ES91/00027

International publication number:
WO 92/11185 (09.07.92 92/17)

Priority: **21.12.90 ES 9003286**
11.04.91 ES 9100925

Date of publication of application:
02.12.92 Bulletin 92/49

Designated Contracting States:
AT BE CH DE DK FR GB GR IT LI LU NL SE

Applicant: **INCHAURTIETA VAZQUEZ, Jes s,
Maria**
Partida del Raspeig C-39
E-03690 San Vicente del Raspeig(ES)
Applicant: **HUESCA PEREZ, Maria, José**
Partida del Raspeig C-39
E-03690 San Vicente del Raspeig(ES)

Inventor: **INCHAURTIETA VAZQUEZ, Jes s,
Maria**
Partida del Raspeig C-39
E-03690 San Vicente del Raspeig(ES)
Inventor: **HUESCA PEREZ, Maria, José**
Partida del Raspeig C-39
E-03690 San Vicente del Raspeig(ES)

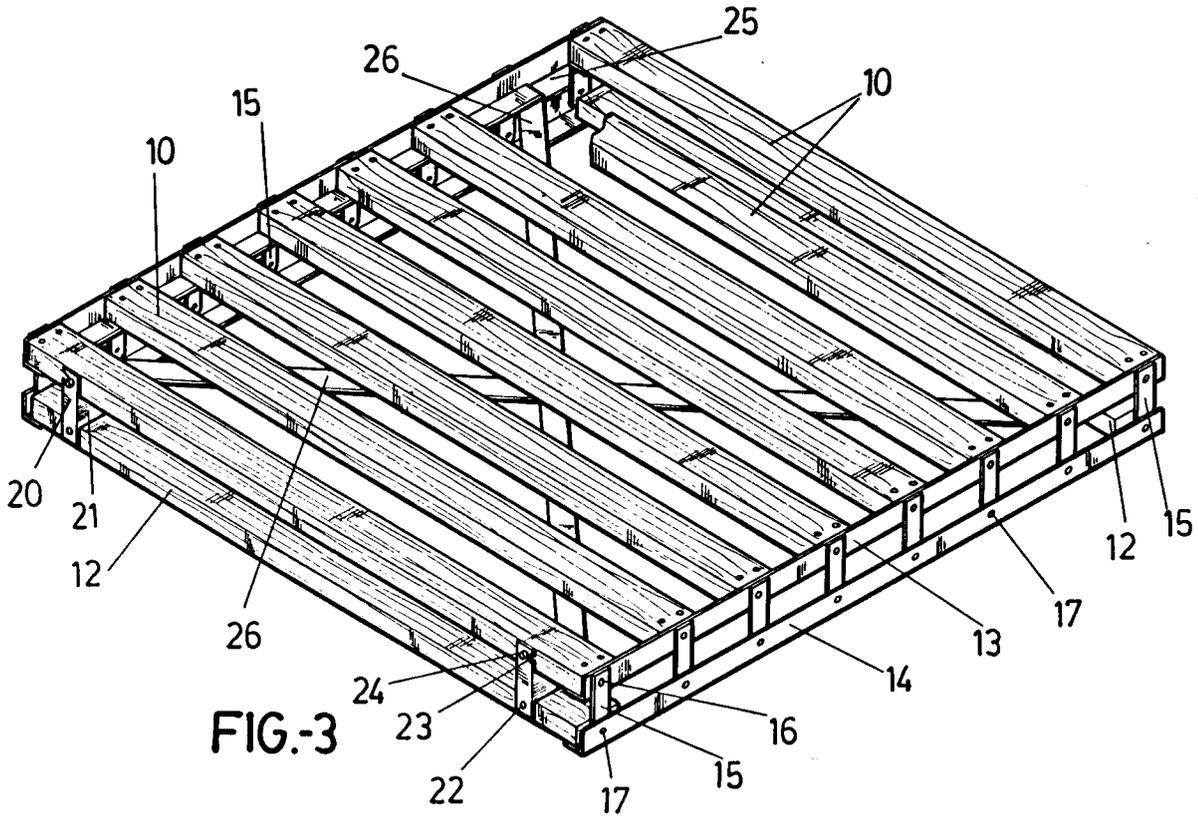
Representative: **Carpintero Lopez, Francisco**
HERRERO & ASOCIADOS, S.L. Alcalá, 21
E-28014 Madrid(ES)

IMPROVEMENTS TO PALLETIZATION PLATFORMS.

The improvements consist in that the planks forming the upper surface (11) of the platform, as well as the lower planks (12) acting as feet, are fixed to the wings of respective angular and lateral respective sections (13, 14) between which are hinged the corresponding rods (15) which allow for the folding and unfolding of the assembly formed by the upper planks (11) with respect to the assembly formed by the lower planks (12), either to occupy the minimum space by the platform when in an inoperative position or to confer these upper and lower parts with a

separation in the operative position and allow for the passage of the arms of a pallet lift-truck. The locking in the operative position is effected by means of an angle part (19) with a wing (20) hinged to the lower and extreme plank (12), while the other wing (21) is interleaved vertically between said lower plank (12) and the upper plank (11), to impede the folding. In the operative position, said angle part (19) is held by a pivot (24) which is housed in a notch (23) of the edge corresponding to the articulation wing (20).

EP 0 515 578 A1



OBJECT OF THE INVENTION

The present invention relates to a number of improvements to palletizing platforms, i.e. to the so-called "pallets".

The said improvements are aimed at reducing the space that the pallets take up when not in use and hence also to cut down on loadless carriage costs.

BACKGROUND OF THE INVENTION

It is a known fact that conventional pallets or load platforms comprise a platform as such, upon which the load is to be placed, which platform is separated from the ground by means of short legs in order provide some space for the arms of a fork-lift truck that is normally used to handle palletized loads.

Obviously, these legs, essential when handling the loaded platform, are a hindrance when carrying and storing loadless pallets, for such legs are several times higher than the thickness of the platform as such and, especially when carrying the same since the pallets do not weigh overmuch, the size of the load depends upon the space they occupy.

In an attempt at overcoming this problem, there are pellets that are coupled to each other by "tonguing and grooving", namely pallets with hollow legs open at their top or operative face that allow the said pallets to be coupled to each other by gradually diverging towards the mouth thereof. More specifically, in this sense there exist metal sheet pellets with embedded legs, and plastic or wooden pallets with the said hollow legs moulded.

These solutions nevertheless clearly increase the manufacturing costs of the pallet as compared with conventional solutions using solid legs.

DESCRIPTION OF THE INVENTION

The improvements subject of the invention are designed to yield the same results as the aforesaid pallets, i.e., to make the most of the space available by coupling the loadless pallets to each other in the best possible fashion, but with a cost that is roughly the same as conventional pallets with solid legs.

More specifically and in order to achieve the above, the improvements of the invention comprise providing the platform with concealable legs so that when the pallet is not in use the said legs are concealed in the spaces defined between the bars that make up the load platform as such, without projecting either from the contour of such platform or from either face thereof.

The said concealable legs are attached to the platform as such through rods, hinges, tie bars or

any other means permitting their moving from their operative position to their position when not in use and vice versa, and furthermore means to block such elements to stabilize the said legs both when not in use and when in use, thereby to avoid unintentional or accidental changes in such position.

According to an embodiment of the invention, the planks making up the load platform are attached to each other with angle brackets, angle brackets also being provided at a lower height for the planks or bars forming the legs to be supported and fixed, the rods being hinged to such brackets.

The unit also has an angle iron, one of the branches of which is longer and hinged close to one of its ends to the plank at either end of the lower part, while the shorter branch is as high as the spacing between the planks in the platform as such and the said lower plank to which the said angle iron is hinged, moreover characterised in that the lateral edge defined between the end sector opposite the angle iron branch hinge and the actual shorter or narrower branch as such has a notch where a spigot or like element provided for such purpose on the end plank in the upper platform sector can be fixed, the relevant planks, i.e. the top and lower planks, therefore resting upon the shorter branch so that when folded such iron is previously rotated or swung for the longer branch thereof to be backed to the front of the top sector end plank, while the smaller arm will actually be backed to the top face of such lower plank, without hindering maximum folding at all, since the thickness of the wings of such angle iron will not exceed the thickness of the angle brackets precisely supporting the platform or pallet planks.

An abutment is also provided for one of the hinge rods so that when in use, the operator, upon unfolding, is aware of the correct position in which the platform is to be left, for if no abutment were provided, this obviously being for the hinge rods to be vertical, the operator would have to check and find such vertical position and position the angle iron by hand, for this is to be the locking element for such operative position, since, as aforesaid, the shorter branch of such angle iron supports the top and lower platform planks, thereby to block the same in order that folding does not come about, unless such angle iron is acted upon and is folded in order to proceed to fold the actual platform.

DESCRIPTION OF THE DRAWINGS

In order to provide a fuller description and contribute to the complete understanding of the characteristics of this invention, a single sheet of drawings is attached to the specification which, while purely illustrative and not fully comprehen-

sive, shows the following:

Figure 1.- Is a side elevation diagrammatic view of a palletizing platform provided with the improvements subject of the present invention, shown when not in use or folded.

Figure 2.- Is a view similar to that of figure 1, showing the palletizing platform when in use or with its legs unfolded.

Figure 3.- Is a perspective view of a palletizing platform in accordance with the second embodiment of the improvements of the invention.

Figure 4.- Is a side elevation close view of a portion of the platform, showing the abutment structure supporting one of the rods, displaying the correct unfolding of the platform or, in other words, the vertical position of the rods for the platform to be locked when in use. The dotted line of this figure shows the various stages to fold the platform, establishing how the rod turns for the planks making up the platform or upper part to be placed over the lower part, to take up a coplanar position and minimize the thickness, and therefore the volume of the load platform as far as possible when it is folded when not in use.

Figure 5.- Is, finally, a general perspective view of the angle iron that acts as means to block the open or operative position of the platform as such.

PREFERRED EMBODIMENT OF THE INVENTION

In light of these figures, and more specifically figures 1 and 2, it is clear that the palletizing platform made in accordance with the improvements subject of this invention, just as a conventional palletizing platform, has a load platform or surface as such (1), comprising a number of parallel planks duly attached to each other by means of crossbars (2), but especially characterised in that the legs resting upon the floor with which the said platform as such is provided are removable and more specifically concealable, in turn comprising bars (3) that are no thicker than the bars (2) making up the platform as such and wide enough so as to fit in spaces (4) provided between the bars (2), the said legs (3) being connected to the bars (2) of the platform as such through rods (5) or any other suitable means to attain two limiting and stable positions, one in which such legs (3) are fully housed in the said spaces (4) of the load platform as such, as shown in figure 1, and another position in which such legs (3) project downward as shown in the diagram of figure 2, to be in a position where they can be used.

Obviously, regardless of the means used to provide the said legs (3) with this movement, i.e. the use of rods, arms, hinges, etc., the palletizing

platform will moreover be provided with appropriate means to stabilize the said legs, in both the operative position of figure 2, to prevent these from leaving such working position, and when not in use as shown in figure 1, to prevent such legs from hindering the handling of the palletizing platforms, in other words loading, unloading and storage thereof.

It finally remains to be said that though in the embodiment shown in the figures the legs (3) swing towards the lower face of the load platform as such, over an angle of almost 90°, in the event of the palletizing platform structure so requiring, such legs may swing in the opposite direction, over an angle of almost 270°, to reach the top face of the platform as such.

Clearly, also, the length of the rods or swinging means for the legs (3) will be appropriate for the load platform as such (1-2), when in use as in figure 2, to be at a suitable distance from the base plane for insertion of the arms of a fork-lift truck, a pallet carrier, etc.

Furthermore, the swinging means for the concealable legs and the rest of the pallet structure will be rigid and strong in accordance with the load that such pallet or palletizing platform is due to carry.

Though this description has hitherto been based upon marginal supports for the pallet, clearly depending upon the size thereof and the kind of load it is to carry, it can also have middle supports, concealable as before.

In accordance with a different embodiment shown in figures 3 to 5, the platform comprises a number of wooden planks (11) on a top plane, and other planks (12) on a lower plane, in such a way that the upper edges of the planks (11) are supported by an upper bracket (13) provided at the sides, while the planks (12) are supported by another lower bracket (14), likewise located at the sides. These upper wooden planks are actually linked to the lower wooden planks, or in other words, brackets (13) and (14) to which such wooden planks (11) and (12) are in fact fixed, through rods (15), the upper part of which is hinged at (16) in respect of the external face of the relevant upper bracket (13), while the lower part thereof is hinged at (17) in respect of the internal face of the lower bracket (14), the lower sector of the rods (15) being inserted between the ends of the lower planks (12) and the actual vertical wing of the bracket (14), as clearly shown in figure 3.

Therefore, when the rods (15) swing, the upper bracket (13) will push against the horizontal wing of the lower bracket (14), and the planks (11) fixed to such upper bracket (13) will descend and be inserted between the lower planks (12), thereby to take up little space, for the thickness will be slightly in excess of that of the planks (11) or (12).

Obviously, unfolding will require finding the vertical point of the hinge rods (15) in order to subsequently block the same in such correct position, to which end an abutment (18) is provided for one of the edges of one of the rods (15) to contact, thereby to establish the correct vertical position of such rods (15) and therefore the correct or working position of the platform made up of the upper planks (11).

Such platform (11) is blocked in this position in order that it does not fold by itself, by means of an angle iron (19) shown in figure 3, which includes two wings (20) and (21) at a right angle to each other, the wing (20) being longer than the wing (21), a point close to the lower end of the said wing (20), specifically hole (22) shown in figure 5, being where the said angle iron (19) is hinged to the lower end platform plank (12), while the edge of the part opposite such wing (20) has a notch (23) with a pinched mouth, where a spigot (24) provided to such end on the upper end plank (11) can be inserted, as shown in figure 3. For its part, the wing (21) is located between such upper (11) and lower (15) planks, these latter being supported by the horizontal edges, namely the upper and lower edges of such wing (21) in the angle iron (19). In other words, this iron hinged at point (22) to the lower end plank (12) can take up a folded position, in which case the wing (20) will be lie next to the front or external cant of such lower plank (20), while the wing (21) will be placed over the lower surface of the said plank (12), allowing the platform to fold by merely rotating the rods (15), at the same time as such angle iron (11) can be turned by hand to take up an operative position, making it turn upward in the direction opposite that of the arrow shown in figure 3 until it locks the spigot (24) through the notch (23), whereupon the wing (21) will be vertical between planks (11) and (12), thereby to represent the blocking means that will prevent closure or folding of the actual platform.

Obviously, the angle iron (19) can be hinged (22) by means of a rivet or any detachable, adjustable or other means, while such iron (19) can stop at the operative position through the notch (23) on the spigot or spindle (24), this latter being either fixed to the plank (11) or adjustable or movable. In order to guarantee a better support and stability of the said blocking element (19), both to the upper (11) and lower (12) plank or crossbar, these latter can have a notch or slot to house the relevant edge.

Finally, and going back to the basic pallet structure, it must be noted that the lower horizontal branch of the angle brackets (13) in the upper pallet plane, at the sector placed over the relevant wooden plank (12), are provided with notches (25) that prevent these brackets (13) from hindering the

said folding procedure.

Finally, and in order to render the pallet structure rigid, it has also been provided that the said angle brackets (13) at the upper plane thereof be stiffened to each other by means of a pair of diagonal rods (26), to which each of the upper planks or bars (11) will preferably also be fixed.

We feel that the device has now been described at sufficient length for any expert in the art to have grasped the full scope of the invention and the advantages it offers.

The materials, shape, size and layout of the elements may be altered provided that this entails no modification of the essential features of the invention.

The terms used to describe the invention herein should be taken to have a broad rather than a restrictive meaning.

Claims

1. Improvements to palletizing platforms, designed to minimise the space taken up thereby when not in use, essentially characterised in comprising the provision of legs (3) physically independent from the load platform as such (1), hinged to the said platform (1), in order for such legs (3) to be able to be at a distance from the same as required by the arms of a fork-lift truck or the like, in order to handle the pallet, or to be concealed within such platform as such, when not in use, the pallet therefore being dimensioned, both as regards length and breadth, and thickness, to coincide with the actual load platform as such thereof.
2. Improvements to palletizing platforms, as in claim 1, characterised in that the legs (3) comprise bars that are no thicker than the bars making up the load platform (1) as such, their breadth being as large or less than the space (4) between these latter, for such legs to be concealed in the spaces defined between the stiffening bars in the said load platform as such.
3. Improvements to palletizing platforms, as in previous claims, characterised in that the legs (3) are connected to the platform as such through rods (5), arms, hinges or any other suitable means, which elements are fitted with blocking means stabilizing such legs in limiting positions when in use or otherwise.
4. Improvements to palletizing platforms, applicable to platforms comprising upper planks (11) and lower planks (12), such being spaced out in order to allow the insertion of the arms of a

fork-lift truck, the upper part being connected to the lower part through hinge rods (15) that allow one part to be folded upon the other in order to reduce the volume when not in use and to separate both parts when in use, essentially characterised in that the ends of the upper (11) and lower (12) planks making up the platform are supported by respective lateral angle brackets (13) and (14) to which they are fixed and to which the relevant rods (15) to fold and unfold the assembly are hinged; specifically characterised in that the blocking means when in use comprise an angle iron (19) with two branches (20) and (21) of different length, such part (19) being hinged through its arm (20) to the lower end plank (12) of the platform, while above branch (21) of such part (19) there is a notch (23) in the actual hinge branch (20) as a means to hook a spigot (24) provided for such purpose on the upper end plank (11), in which position the longer branch (21) will be located between the said upper (11) and lower (12) planks, supported by the same and representing the blocking means to prevent the platform from folding.

5. Improvements to palletizing platforms, as in claim 4, characterised in that the lower bracket (14) has an abutment (18) upon which one of the hinge rods (15) stumbles when the same are vertical, when the actual platform is unfolded.
6. Improvements to palletizing platforms, as in claims 4 and 5, characterised in that the rods (15) are hinged to the external face of the upper bracket (13) and to the inner face of the lower bracket (14), the lower end sectors of such rods (15) being in this latter event located between the vertical wing of such lower bracket (14) and the end of the relevant lower plank (12).

45

50

55

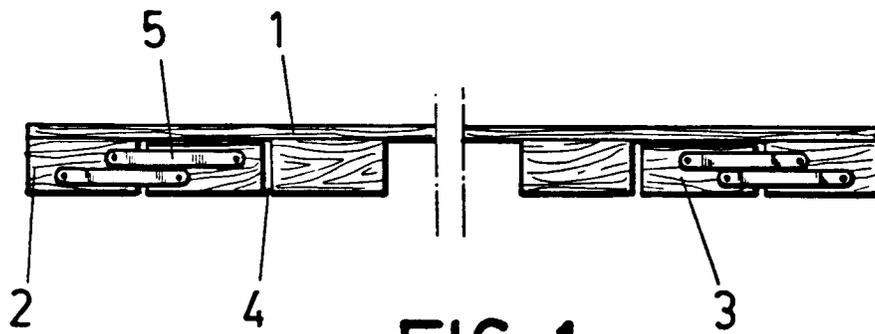


FIG-1

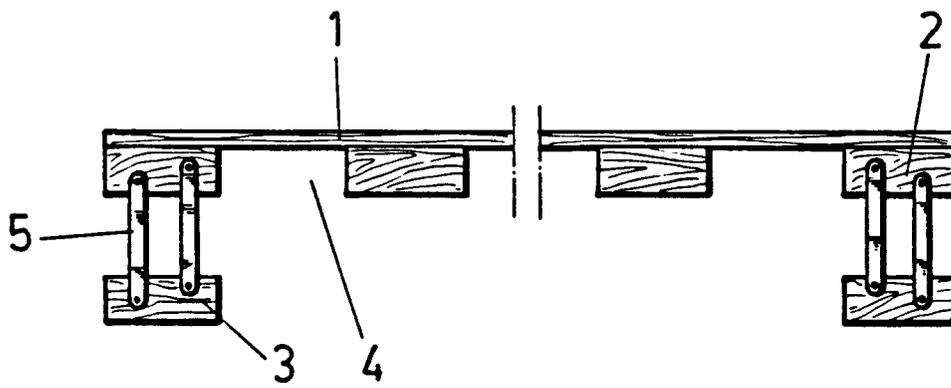


FIG-2

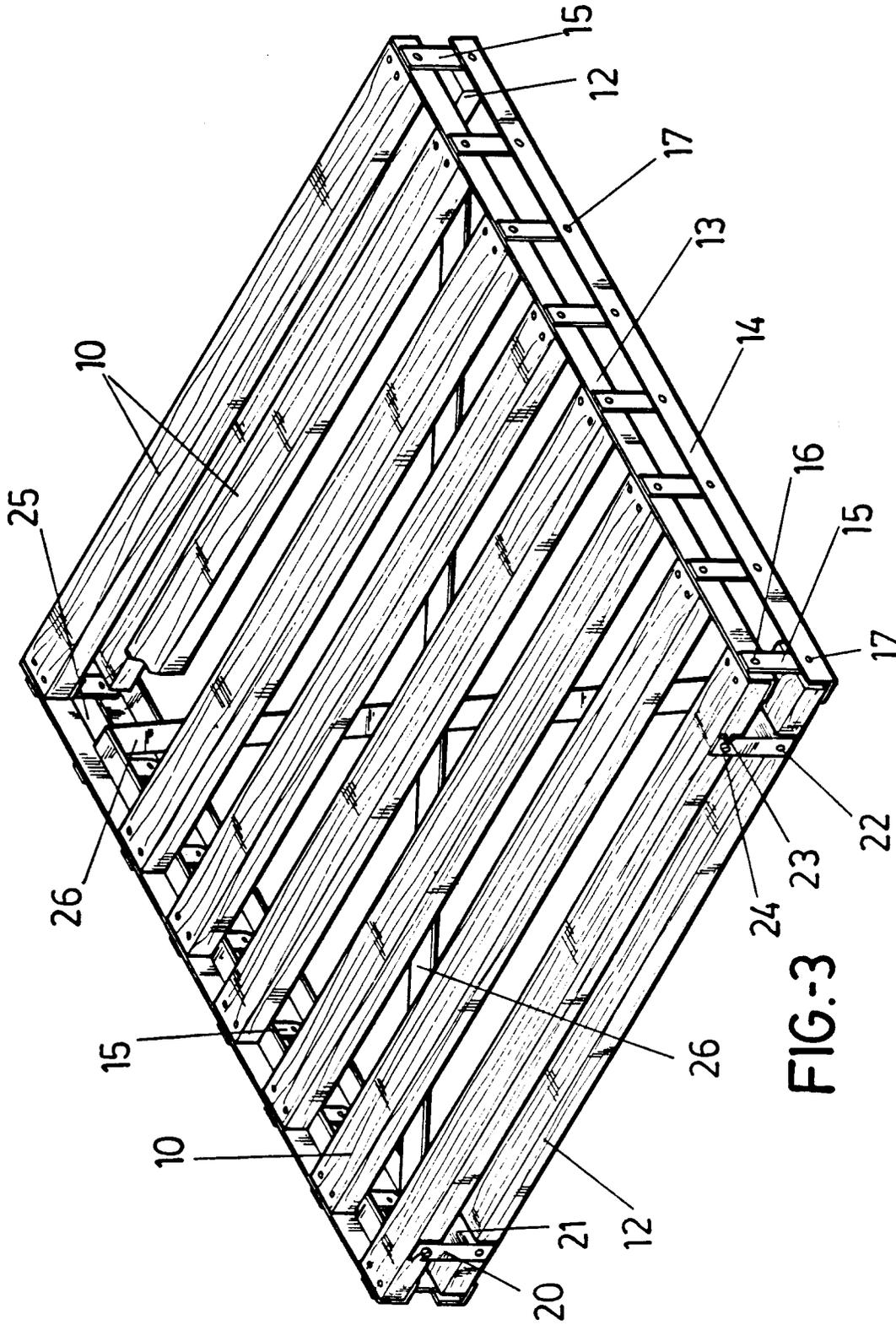
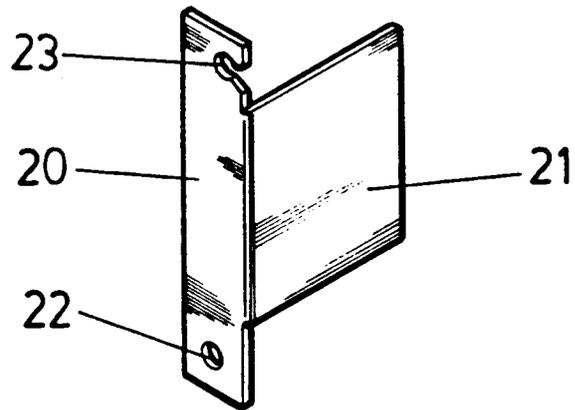
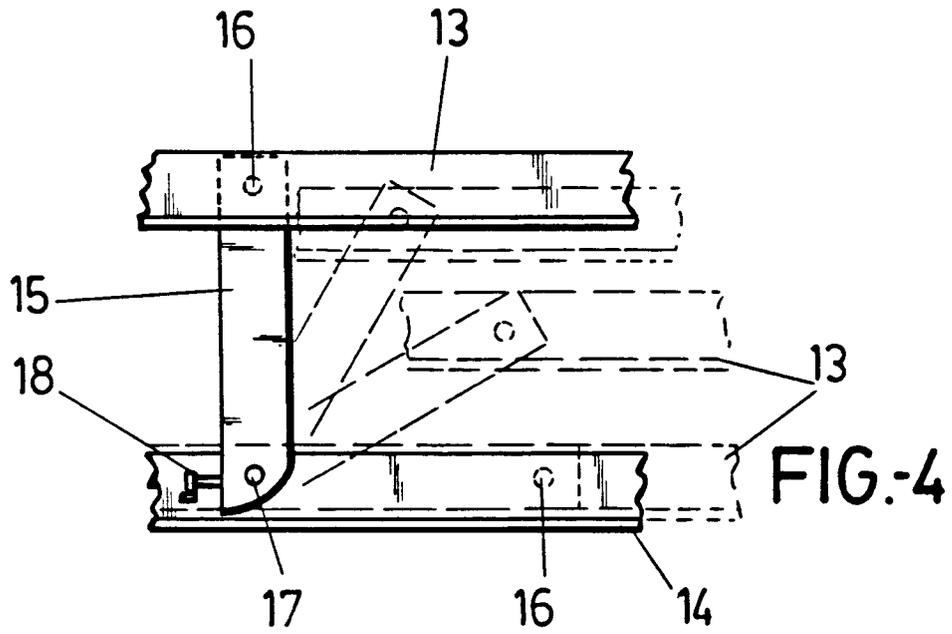


FIG.-3



INTERNATIONAL SEARCH REPORT

PCT/ES 91/00027

International Application No

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) ⁶		
According to International Patent Classification (IPC) or to both National Classification and IPC		
Int.Cl. ⁵ : B 65 D 19/26		
II. FIELDS SEARCHED		
Minimum Documentation Searched ⁷		
Classification System	Classification Symbols	
Int.Cl. ⁵	B 65 D	
Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched ⁸		
III. DOCUMENTS CONSIDERED TO BE RELEVANT ⁹		
Category ⁹	Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³
A	GB, A, 2025358 (TRANSIT PACKAGING LTD) 23 January 1980, see page 1, lines 80-93 and 121-129; figures 1-3 ---	1, 4
A	CA, A, 971116 (LIEBERMAN) 15 July 1975, see page 8, lines 2-8; figures 4,5 ---	1
A	WO, A, 8802725 (DEPEW) 21 April 1988, see figure 6 -----	4
<p>⁹ Special categories of cited documents: ¹⁰</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.</p> <p>"&" document member of the same patent family</p>		
IV. CERTIFICATION		
Date of the Actual Completion of the International Search	Date of Mailing of this International Search Report	
23 July 1991 (23.07.91)	26 September 1991 (26.09.91)	
International Searching Authority	Signature of Authorized Officer	
EUROPEAN PATENT OFFICE		