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71 Applicant: **Marvia, Kaarlo**
Kierretie 10
SF-01650 Vantaa 65(FI)

71 Applicant: **Ahlfors, Timo**
Djupström
FI-02400 Kirkkonummi(FI)

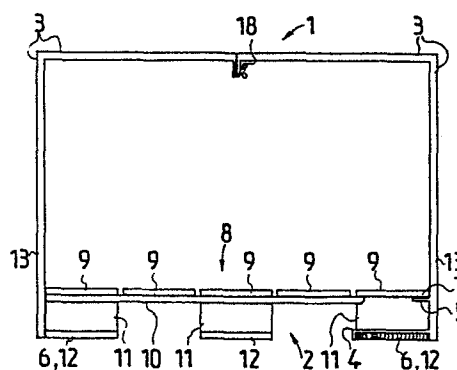
72 Inventor: **Marvia, Kaarlo**
Kierretie 10
SF-01650 Vantaa 65(FI)

72 Inventor: **Ahlfors, Timo**
Djupström
FI-02400 Kirkkonummi(FI)

74 Representative: **Zipse + Habersack**
Kemnatenstrasse 49
D-8000 München 19(DE)

54 Fastening mechanism for load pallet frame.

57 The invention concerns a fastening mechanism for detachably fastening a load pallet frame (1) on a load pallet (2) from the side thereof. The load pallet frame comprises at least two frame elements (3) placeable on opposite sides of the pallet and joinable together, each frame element comprising laterally projecting components: a hook-like hook member (4) and a shoulder-like locking claw (5) spaced from each other in the vertical direction, the load pallet comprising shoulder-like components: a supporting member (6) coordinated to each hook member and a supporting shoulder (7) coordinated to each locking claw. The hook member (4) can be pushed from the side to rest against the supporting member (6) and the locking claw (5) can be pushed to rest against the supporting shoulder (7), whereafter the elements can be joined together over and across the pallet.



Kaarlo Marvia - SF-Vantaa
Timo Ahlfors - SF-Kirkkonummi

08.11.1982

Fastening mechanism for load pallet frame

The invention concerns a fastening mechanism for detachably fastening a load pallet frame on a load pallet, said frame comprising at least two frame elements placeably on opposite sides of the pallet and joinable together.

Load pallet frames are used on load pallets in order to keep the products loaded on pallets on these pallets and in order to enable load pallets to be stacked upon each other. In prior art for instance a load pallet frame is known which is attachable to the load pallet by pushing the tubular fixing legs of the frame into apertures provided on the corners of the load pallet. Furthermore, such mechanisms are known in the art where engagement claws on the load pallet frame become fixed over the edgemost deck boards of the load pallet frame, or the marginal boards of the deck, and behind them. Still further, such mechanisms are known in the art wherein the frame elements of the load pallet frame have been arranged to rest against the top surface of the load pallet, while the fixing claws hook under the marginal boards of the deck.

The above-mentioned load pallet frame fastening mechanisms do not satisfy all requirements imposed on the load pallet frames in question. It is particularly noted that the attaching of the frame and/or the frame's fastening elements to a load pallet loaded with goods meets with difficulties or is completely impossible when using fastening mechanisms of prior art, as the goods placed on the pallet inhibit the fastening of the fastening elements and/or claws upon the load pallet. For the same reason, removal of the frame from a load pallet loaded with goods is cumbersome or outright im-

possible.

The object of the present invention is to eliminate the drawbacks mentioned and to provide a fastening mechanism suitable for fastening a load pallet frame detachably to a load pallet loaded with goods, around the goods. It is a further object of the invention: to provide the said fastening mechanism suitable to be detached and removed from around a load pallet loaded with goods. It is particularly an object of the invention: to provide a fastening mechanism for detachably fastening a load pallet frame to a conventional load pallet comprising deck margin boards which confine the deck in lateral direction and marginal foot boards constituting the legs of the load pallet, spaced from each other in the height direction. It is moreover an object of the invention: to provide a fastening mechanism meeting the requirements stated in the foregoing and suitable for detachably fastening to a load pallet a load pallet frame permitting load pallets to be stacked upon each other.

Regarding the characteristic features of the invention, reference is made to the claims section.

The invention is based on a special hook-like hook member which belongs to the frame element of the load pallet frame and on a locking claw placed at a distance in vertical direction from this, the hook member being pushable from the side in behind a supporting member which is part of the load pallet frame, for instance the foot board, with the frame element suitably inclined, whereafter the frame element may be turned upright, while the locking claw locks the element in the vertical direction fast against a supporting shoulder, for instance the marginal board of the deck. The frame elements are thereafter connectable by the elements!

body structure, for instance posts, to each other upon the load pallet, either laterally around the pallet or appropriately crossing over the pallet, for instance as known from earlier load pallet frames. The load pallet
5 frame fastening mechanism of the invention enables the load pallet frame to be fastened around a load pallet loaded with goods, without removing any goods from the load pallet, and similarly it enables the load pallet frame to be removed from around a loaded load pallet of
10 this type. The mechanism is exceedingly simple of its construction and thus more favourable than earlier mechanisms in its manufacturing costs. The fastening mechanism renders possible the easy and rapid detachable fastening to load pallets of sturdily built load
15 pallet frames which allow load pallets to be stacked on each other.

The invention is described in detail in the following with the aid of embodiment examples, with reference to the attached drawing, wherein:-

20 Fig. 1 presents, viewed from one end of the load pallet, a load pallet frame provided with a fastening mechanism according to the invention, attached to the load pallet;

Fig. 2 illustrates, in perspective, components associated with the fastening mechanism of the load pallet frame
25 fastening element according to Fig. 1;

Fig. 3 shows, in elevational view, the frame fastening mechanism according to another embodiment of the invention; and

Fig. 4 presents, in elevational view, the fastening
30 mechanism according to a third embodiment of the invention.

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In Fig..1 is depicted the load pallet frame 1 detachably fastened to a load pallet 2, the frame consisting of two frame elements 3 disposed on opposite sides of the pallet and detachably connected with each other across the pallet by bolt attachment 18. As taught by the invention, each frame element 3 comprises the following components projecting to one side: a hook-like hook member 4 and a shoulder-like locking claw 5, these two being spaced in the vertical direction. The pallet 2 furthermore comprises shoulder-like components: a supporting member 6 coordinated with the hook member and a supporting shoulder 7 meeting the locking claw. The said components have been disposed so that the frame element 3 can be locked fast to the load pallet 2 by pushing the laterally projecting and downwardly angulated hook member 4, affixed to the upright post 13 of the frame element, over and behind the supporting member 6, that is the marginal foot board 12 of the pallet, to interlock therewith and by pushing the similarly laterally projecting locking claw 5, affixed to said upright post spaced from and higher than the hook member, in under the supporting shoulder 7, that is the marginal board 9 of the pallet's deck. The said locking is conveniently accomplished with the frame element 3, that is the upright post 13, tilted outward, by first locking the hook member 4 behind the supporting member 6 and by thereafter raising the frame element to the upright position, whereby the locking claw will be locked under the supporting shoulder 7. The next step is to connect the frame elements 3 mounted on both sides of the pallet 2 as has just been described, detachably with each other on the pallet's topside, for instance attaching the upright posts 13 of the frame elements to each other by connecting with each other the horizontal braces permanently joined to the upper ends of the posts, e.g. by a bolt, cotter pin or equivalent joint 18 known

in itself in the art.

In Fig. 2 are seen the fastening members on the lower end of the frame element 3 according to Fig. 1, i.e., the hook member 4 and locking claw 5. The hook member 4 consists of a plate attached by welding to the upright post 13, having rectangular cross section, of the frame element 3, this plate having been shaped to have a flange-like U section with inverted vertical section. The hook member 4 has been attached by welding by one leg of its U profile to the upright post 13, while the mid-portion 15 of the section together with its latter leg 16 forms a hook member 4 projecting to one side from the post and angulated downward. The locking claw 5 consists of a planar flange member welded to the post 13 above, and spaced from, the hook member 4. The hook member 4 and locking claw 5 are both aligned vertically, at a given distance from one margin of the upright post 13 in order to enable the post to be locked fast in register with the pallet's leg, with the hook member and locking claw to one side of the leg.

In the embodiment of Figs 1 and 2, the frame element 3, that is the upright post 13, becomes locked to the load pallet in such manner that the hook member 4 hooks the lower end of the post over and behind the marginal foot board 12 of the load pallet 2, preventing any movement of the post downward and laterally, outward from the pallet. Furthermore, the locking claw 5 pushes in under the marginal board 9 of the pallet's deck 8, preventing the post 13 from rising upward. The post 13 finds support against the outer sides of said marginal foot board 12 and marginal board 9 of the deck 8, preventing all movement of the post parallel to the plane of the pallet 2.

In the embodiments depicted in Figs 1-3, the hook member

4 has been disposed above the supporting member 2, the locking claw 5 being disposed on the opposite side of the supporting shoulder 7' with a view to providing complete support in the vertical direction to the frame element. Furthermore, in order to improve the fixing in the vertical direction, Fig. 3, the locking claw has been connected with the hook member by an intermediate brace for making them reinforce each other. The dimension of the locking claw at right angles away from the frame element 3 is less than the corresponding dimension of the hook member 4, and this enables the hook member to be locked, first behind the supporting member 6 with the post 13 in inclined position and thereafter the post to be turned upright with the locking claw against the supporting shoulder 7. In this case the hook member has been disposed below and the locking claw 5, above the hook member.

In the embodiment depicted in Fig. 4, the marginal structures of the load pallet consist of two parallel tubes located one above the other, the upper tube constituting the supporting member and the lower tube, the supporting shoulder. The hook member 4 has been disposed above the locking claw 5. In this case the frame element is attached by inclining the upright post 13 in over the pallet (indicated with interrupted lines 14) and by pushing the hook member 4 in under the supporting member 6. The post 13 is then raised to upright position, whereby the locking claw 5 goes in over the supporting shoulder 7 to be supported by it, while the post is being urged against the body structure tubes constituting the supporting member and supporting shoulder, that is, against the components which correspond to the marginal board of the deck and to the marginal foot board.

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The invention is not restricted to the embodiment examples presented: its embodiments may vary within the scope of the claims following below. It is thus possible to apply the invention, for instance, so that the hook member 4 and the locking claw 5 are not placed, like shown in Figs 1-4, between the supporting member 6 and the supporting shoulder 7, but e.g. so that the hook member 4 is located farthest down below the supporting member 6 and the locking claw 5 is located topmost over the supporting shoulder 7; alternatively, the hook member may rest against the supporting member 6 located therebelow on its upper side and the claw member 5 located below the hook member may rest against the supporting shoulder from its underside.

CLAIMS

1. A fastening mechanism for detachably fastening a load
pallet frame (1) on a load pallet (2), said frame
comprising at least two frame elements (3) placeable on
opposite sides of the pallet and joinable together,
5 c h a r a c t e r i z e d in that each frame element
(3) comprises laterally projecting components: a hook-like
hook member (4) and a shoulder-like locking claw (5)
spaced from each other in the vertical direction, and
that the load pallet comprises shoulder-like components:
10 a supporting member (6) coordinated to each hook member
and a supporting shoulder (7) coordinated to each
locking claw, these components being so disposed that
the frame element can be locked fast to the pallet in
the vertical and lateral directions by pushing the hook
15 member from the side of the pallet into hook engagement
to be supported by the supporting member and the locking
claw to be supported by the supporting shoulder, and
by joining the frame elements with each other on the
topside of the pallet.
- 20 2. Fastening mechanism according to claim 1,
c h a r a c t e r i z e d in that to the purpose of
providing support in the vertical direction for the
frame element (3), the hook member (4) has been disposed
on one side of the respective supporting member (6), the
25 locking claw (5) being disposed on the opposite side of
the respective locking shoulder (7).
3. Fastening mechanism according to claim 1 or 2, the
load pallet (2) comprising marginal foot boards (12)
and marginal deck boards (9) disposed on opposite sides
30 of the load pallet on its margins vertically spaced
from each other, c h a r a c t e r i z e d in that
the hook member (4) has been disposed to project

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laterally and turn downward over the marginal foot board (12) to be locked therebehind and the locking claw (5) has been disposed to project laterally in under the marginal board (9) of the deck so that the
5 hook member will lock the frame element to the pallet (2) laterally, outward and downward and the locking claw will lock the frame element (3) to the pallet in the upward direction, the frame element resting against the sides of the marginal foot board and the marginal
10 deck board.

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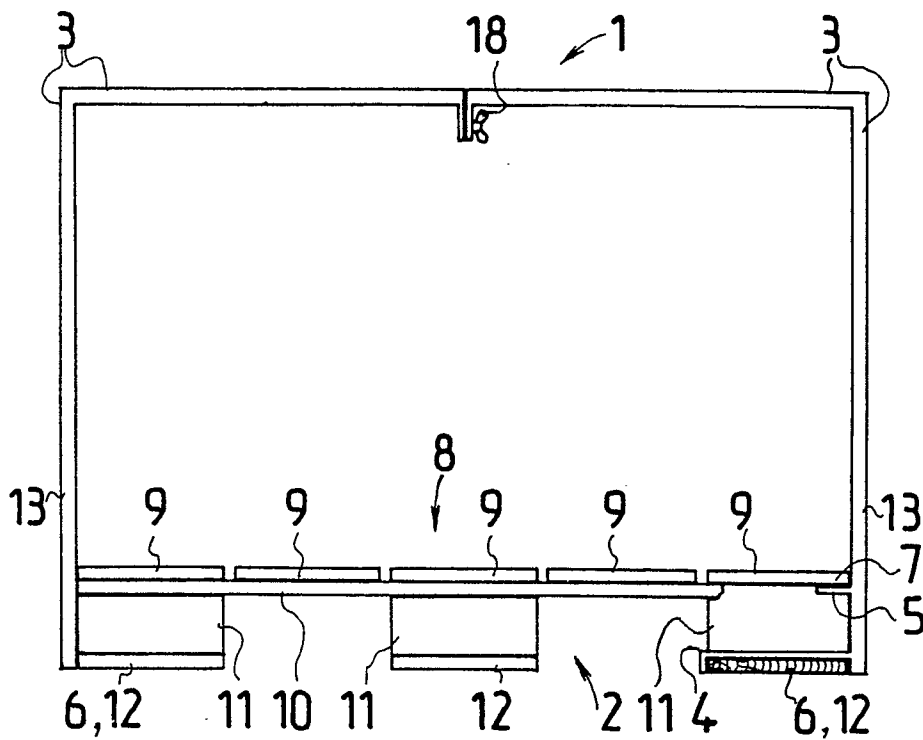


Fig.1

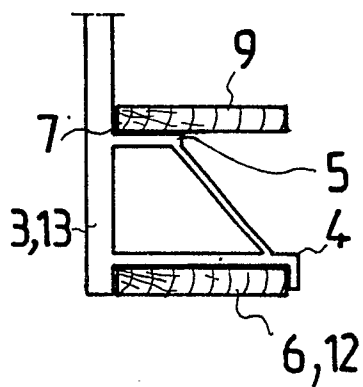


Fig.3

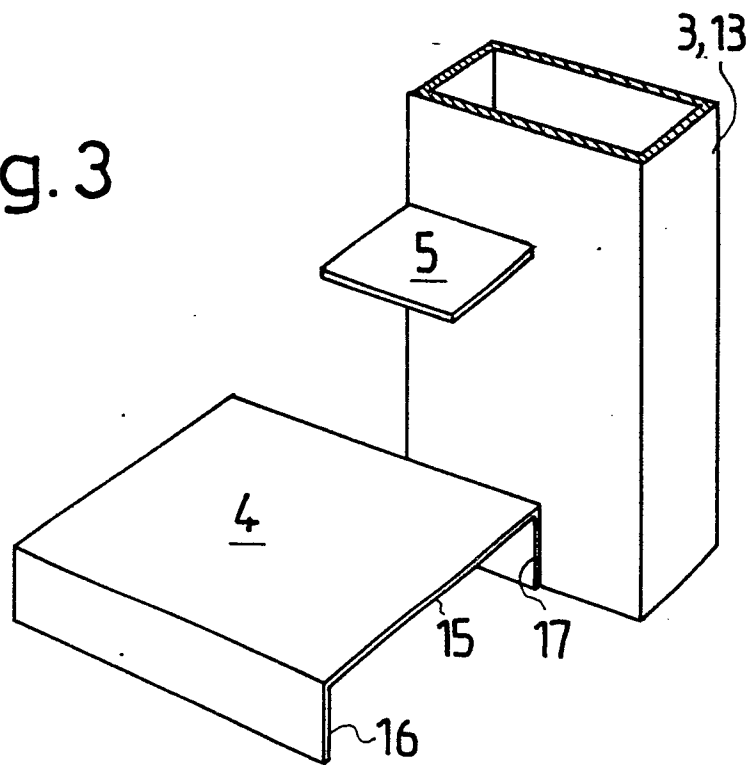


Fig.2

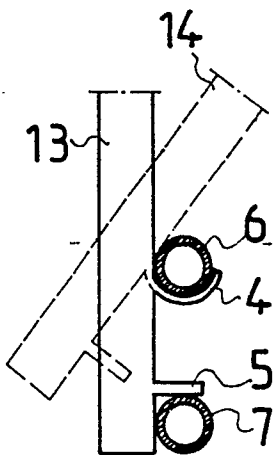


Fig.4



European Patent
Office

EUROPEAN SEARCH REPORT

0108161

Application number

EP 82 11 0287

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. 3)
X	FR-A-2 265 624 (PALETTES PERURENA S.A.R.L.) * Page 5, lines 18-26; figures 16, 17 *	1-3	B 65 D 19/06 B 65 D 19/12
A	FR-A-2 310 276 (STE D'EQUIPEMENT MENAGER INDUSTRIEL ET COMMERCIAL SEMICO) * Figures 1, 2 *	1	
A	DE-A-2 621 754 (VARIANTSYSTEMET A/S) * Page 3, line 16 - page 4, line 9; figure 2 *	1	
A	US-A-2 969 948 (HIGGINS)		
			TECHNICAL FIELDS SEARCHED (Int. Cl. 3)
			B 65 D 19/00
The present search report has been drawn up for all claims			
Place of search BERLIN		Date of completion of the search 20-06-1983	Examiner SIMON J J P
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			