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(54) Load pallet.

(57) A load pallet, comprising a deck component and four legs. The aim is to provide a load pallet, attachable with ease to a packing case and which requires little space when stored. Load pallets known in the art are heavily built, difficult to stack and, when stacked, particularly space-consuming, and awkward to handle.

As taught by the invention, the legs (2) of the load pallet are open in shape and upwards widening, mainly U-shaped. Apertures (5) are advantageously provided in the deck (1), at the locations of the legs (2), to enable the pallets to be stacked with the legs of one pallet entering the apertures in the deck of the preceding pallet. The deck component (1) of the load pallet may be placed to rest against the lower edges of the case part (11), and may be placed between the said supporting edges and the lower sheet part folded in under the deck component and has been affixed at least to the lower sheet part. In the lower sheet parts (15) preferably apertures (19) have been provided for the legs (2), whereat the legs become located under the deck component (1), pushing out downwards through said apertures.

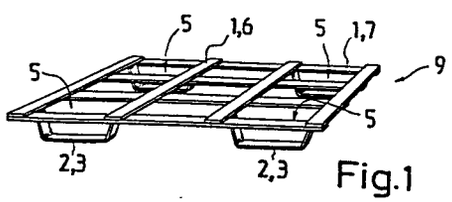

Fig.1

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Load Pallet

The object ot the invention is a load pallet comprising a substantially planar deck and there under disposed legs, at least four in number, said legs supporting the deck. In particular, the invention concerns packing cases made of cardboard or equivalent material and provided with a load pallet.

The legs of conventional load pallets have been affixed to frame beams binding the deck boards of the pallet together, on the underside of said beams. The legs have in general been interconnected by means of footboards running below the legs. A load pallet of this conventional type presents the drawback that when stacked upon each other, the pallets require a comparatively high space.

The manufacturing of a load pallet with packing case, i.e. a packing case with load pallet implies that separate packing cases and load pallets are made which then, e.g. in connection with the filling of the packing cases, are attached to each other. Thereby the manufacturing of a packing case with load pallet requires a plurality of work steps, and this increases the price of such packing cases, which are mostly intended to be discardable.

The following requirements are imposed on a competitive mainly discardable packing case provided with load pallet: low price, assembly should be easy and fast, low space requirements in storage, convenient transport of raw materials and components from manufacturer to packer, and low space requirement of components in order to render large scale production and long transport distances possible. Packing cases with load pallet known in the art fail to meet these requirements.

The object of the present invention is to eliminate the draw-

backs mentioned. It is a further object of the invention to disclose a load pallet easily pilable on top of each other and in piling taking a minimum space. Furthermore, the object of the invention is to disclose a load pallet which in a pile makes a compact, stable pile easy to manage. It is a further object of the invention to provide a packing case which meets the requirements stated above, which have to be imposed on a competitive packing case with load pallet.

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

The invention is based on utilization in the affixing of the load pallet, and particularly in assembling the load pallet in connection with assembly of the packing case, of the sheet part, or parts, belonging to a conventional packing case made of cardboard or equivalent material and turnably attached to the lower margin of the packing case.

In connection with the manufacturing of a packing case as taught by the invention, assembly of the load pallet, assembly of the packing case and affixing of the load pallet under the packing case all are accomplished in one work step. The manufacturing costs of the packing case are thereby substantially reduced.

Furthermore, if the load pallet is not assembled until in connection with assembling the packing case, it becomes possible to ship the load pallet as well as the packing case from manufacturer to packer in the form of components, storage and transport of these components being usually with the components placed one in the other, intercalated, or otherwise in compact packages. It is hereby possible to avoid transporting the packing cases and/or load pallets, frequently space-consuming, as they are, in the form of completed units.

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

Fig. 1 presents, in perspective, an embodiment of the load pallet of the invention,

Fig. 2 presents in elevational view, enlarged and partly sectioned, the load pallet of Fig. 1,

Fig. 3 presents the leg structure of a load pallet according to another embodiment of the invention,

Figs 4-6 present, in perspective, the assembly of a packing case according to the invention of its parts, with the bottom turned to point upwardly, and

Fig. 7 displays another packing case according to the invention, its assembly completed and its bottom turned downwards.

The load pallet 9 depicted in Fig. 1 comprises a substantially planar, plate-like and rectangular deck component 1, and four legs 2, placed under the deck and supporting it. As taught by the invention, the legs 2 are upwards widening in shape, mainly of U-shape. The legs 2 form an elbow 3 projecting downwards, and two prongs 4, sidewise projecting in their upper part. The legs 2 are affixed to the deck 1 by their prongs 4. In the embodiment depicted, the legs 2 are made of strip material, that is, of die-shaped plywood, and they have been formed of veneers by laminating and bonding in connection with die-pressing. The legs 2 are of uniform width and thickness and designed to have comparatively low weight. The lower parts or bottoms of the elbows 3 are horizontal, rectilinear and planar; the parts of the elbows connecting the bottoms and the prongs 4 are rectilinear and planar.

In Fig. 1, apertures 5 have been made in the deck 1 in register with the legs 2. The legs 2 have been fitted to go into the apertures in the manner that a number of load pallets can be stacked on top of each other by making the legs of the second pallet enter the apertures in the deck of the preceding pallet. Thus, the load pallets require minimum space in the vertical direction, no more than a few centimetres in fact. In addition, the load pallets stacked on top of each other make an extremely firm pile, since the legs nest in each other and become wedged stepwise in the legs of the preceding pallet, owing to their open construction.

In the embodiment depicted in Figs 1 and 2, the deck component 1 of the load pallet consists of transverse beams 6 to which the legs 2 have been affixed with hooks 8 by their prongs 4 turning to one side. The load pallet is provided with four transverse beams, disposed two and two at the ends of each leg pair. Deck boards 7, placed at right angles to the transverse beams 6, bind the transverse beams together. The deck boards have been placed two and two, on the sides of each leg pair. The legs have been placed in parallel to form a rectangle.

In the embodiment depicted in Fig. 3 can be seen three legs of another embodiment of the invention, these legs consisting of a unitary die-pressed and bonded plywood strip component. Each leg 2 is, as in the embodiment of Figs 1 and 2, of U-shape and upwards widening and it constitutes an elbow 3, downwards projecting and with horizontal bottom and, furthermore, two sidewise projecting horizontal prongs 4. In Fig. 3 the three legs are integrally united to form a continuous corrugated unit, whereas in Figs 1 and 2 each leg constitutes a separate unit. The unit of three legs shown in Fig. 3 can be affixed on the bottom of a packing case as it is, whereby the bottom of the packing case will constitute the deck component of the load pallet. The entity

of three legs may alternatively be affixed e.g. to a load pallet of the type shown in Fig. 1 composed of transverse beams and deck boards, to a load pallet composed of a substantially uninterrupted sheet of chipboard, hardboard or equivalent material, or to any load pallet known in the art. The deck of the load pallet being substantially continuous, e.g. made of chipboard, separate apertures can be provided therein, as in Fig. 1, to facilitate the stacking of the decks.

In Fig. 6 is seen a packing case according to the present invention, turned upside down. The packing case comprises a mainly rectangular case part 11 made of corrugated cardboard and a load pallet 9, this latter having been fitted under the case part to support it. The case part is confined by the side walls 12, 12' and by the bottom 13, laterally and downwardly, respectively. The structural design of packing and load pallet according to the invention are best readable from the assembly drawings 4 and 5.

In Fig. 4, the case part 11 made of corrugated cardboard has been upended to have its bottom pointing upwardly. The case part has been made up in box shape of a prefabricated case blank. To the lower margins 14 and 14', respectively, of opposing side walls 12 and 12' of the case are turnably adjoined the sheet components 15, 15', to wit: to the pair of opposing side walls 12 have been turnably adjoined the lower sheet components 15, and to the pair of sides 12' positioned crosswise with reference to the sides mentioned, the bottom sheet parts 15' have been similarly adjoined. In Fig. 4, the bottom sheet parts 15' have been turned to form the bottom, into a position at right angles to the side walls and pointing towards each other, while the lower sheet parts 15 both point obliquely upward.

In Fig. 5, the deck part 1 of the load pallet, that is, a

rectangular plate made of a sheet material such as plywood, hardboard, chipboard, corrugated cardboard, cardboard or equivalent, has been placed and abutted in support against the lower edges 14' of the side walls 12' which are crossed with the lower sheet parts 15 (said lower edges are invisible in the figure under the deck component). The deck component is preferably so dimensioned that it extends somewhat past the lower edges 14' of said side walls 12' in order that said lower edges might find support upon the deck component in the completed packing case. In Fig. 5 there have been disposed upon the deck component - that is, under the deck component in the completed packing case - close to the fixing edges 14 of the lower sheet parts 15, two pairs of load pallet legs 2. In the embodiment depicted, the legs consist of strip-like material bent into corrugated configuration, such as plywood, sheet metal, plastic sheet, etc., forming downwardly projecting, substantially U-shaped leg-resembling elbows 3 which in their upper part present prongs 4 projecting to one side. In the lower sheet parts 15, apertures 19 conforming to said legs have been provided so that when the lower sheet parts are folded down upon the legs 2 so that the deck part becomes interposed between said supporting edges 14' and the lower sheet parts, the legs 2 will push out through said apertures 19, while the prongs 4 remain over the apertures and become affixed to the margins of the apertures as seen in Fig. 6.

In Fig. 6, the deck component 1 of the load pallet 9 has been enclosed between the supporting edges 14' of the side walls 12' of the case part 11 and the lower sheet parts 15, the legs 2 portruding through the apertures 19 in the lower sheet parts. The margins of the deck component 1 push out somewhat into view in lateral direction over the said supporting edges, to the outside of the case part. The lower sheet parts 15 have been affixed to the deck component 1

and to the prongs 4 (not visible in the figure) of the legs 2 by staples 8; staples 8 likewise attach the legs to the deck part 1.

The manufacturing of the packing case with load pallet, shown in Figs 4-6, is very fast and simple in one single step. It does not imply that the load pallet is separately assembled and attached under the packing case, which has been indispensable in connection with the manufacturing of conventional equivalent packing cases. The packing case thus obtained is extremely sturdy of its construction, the load pallet built into the bottom of the packing case giving significant added strength to the packing case. The components of the packing case, such as the packing case blanks made of corrugated cardboard, the deck parts 1 for the load pallet made e.g. of chip-board, and the leg profile strips shaped of plywood for instance for the legs 2, all can be packed and transported stacked and intercalated with great ease and little space requirements, and rapidly and at low cost.

In Fig. 7 is seen another packing case according to the invention, where the bottom sheet parts 15' have been joined with the lower sheet parts 15, the deck component 1 and the legs 2 by staples 8. Hereby a highly durable and high-strength bottom structure is obtained for the packing case. The side walls 12 of the packing case are low, and the packing case has substantially a shape corresponding to the type of load pallet provided with a pallet collar.

In conventional packing cases, e.g. in those made of corrugated cardboard, the bottom-making implies that there are formed lower sheet parts 15 and 15' attaching to the mutually crosswise disposed side walls 12 and 12', respectively, of the case part. Thanks to the present invention, as the deck component constitutes the bottom of

the packing case, the said sheet parts may be made smaller than before, or some of them - for instance both bottom sheet parts - may be omitted in the interest of saving raw material.

It is obvious to a person skilled in the art that the embodiments may vary within the scope of the claims stated below.

Claims

1. A load pallet comprising a substantially planar deck component (1) and not less than four legs (2) placed under this and supporting it, c h a r a c t e r i z e d in that the legs (2) are in their shape open, upwards widening, substantially U-shaped, that the legs (2) form a downwards projecting elbow (3) and, in their upper part, two prongs (4) projecting to one side, and that the legs are affixed to the deck component (1) by their prongs.

2. A load pallet according to claim 1, c h a r a c t e - r i z e d in that appertures (5) have been provided in the deck component (1) at the location of the legs (2), into which apertures the legs have been so fitted that the load pallets can be stacked with the legs of one pallet in the apertures of the preceding deck.

3. A load pallet according to claim 1 or 2, c h a - r a c t e r i z e d in that the legs (2) consist of strip-like material, such as multi-ply cardboard, plywood, hardboard, sheet iron, plastic sheet, or equivalent.

4. A load pallet according to any one of claims 1 to 3, c h a r a c t e r i z e d in that the legs are made of laminated, die-pressed and bonded material, such as die-shaped plywood.

5. A load pallet according to any one of claims 1-4 adapted to support a packing case comprising a substantially rectangular case part (11) confined by side walls (12, 12') and by a bottom (13) laterally, respectively downward, the bottom comprising at least one sheet part turnably adjoining to the lower margin (14) of one side wall (12), or a lower sheet part (15), c h a r a c t e r i z e d in that the deck component (1) has been supported under the case part (11)

against the lower margins (14'), or supporting edges, of the side walls (12') running crosswise with regard to said lower sheet part (15) and has been placed between said supporting edges and the lower sheet part turned in under the deck component and has been affixed to the lower sheet part at least.

6. A load pallet according to claim 5, c h a r a c t e r i z e d in that the case part (11) comprises two lower sheet parts (15) turnably adjoined to the lower edges (14) of two opposing side walls (12), and that the deck component (1) has been placed between the supporting edges (14') and the lower sheet parts turned in under the deck component and has been affixed to said lower sheet parts.

7. A load pallet according to claim 5 or 6, c h a r a c t e r i z e d in that the deck component (1), the lower sheet part (15) and the legs (2) have been attached to each other all at once.

8. A load pallet according to any one of claims 5-7, c h a r a c t e r i z e d in that the case part (11) furthermore comprises two sheet parts turnably adjoined to both supporting edges (14), or bottom sheet parts (15'), which are placed crosswise with reference to the lower sheet part (15), and that said bottom sheet parts (15') have been folded in on the side of the deck component (1) facing the case part and have possibly been affixed to the deck component.

9. A load pallet according to any one of claims 5-8, c h a r a c t e r i z e d in that the lower sheet part (15) has been provided with apertures (19) for the legs (2) and that the legs become located under the deck component (1) thereagainst, pushing downward through said apertures.

10. A load pallet according to claim 8, c h a r a c t e r i z e d in that the lower sheet part (15), the legs (2) and deck component (1) have been affixed to each other all at once by staples, rivets, nails or equivalent fastening elements.

11. A load pallet according to any one of claims 5-10, c h a r a c t e r i z e d in that the elbows (3) of the legs (2) have been adapted to push through apertures (19) in the lower sheet parts (15) so that the prongs (4) remain above the apertures, being attached to the margins of the apertures.

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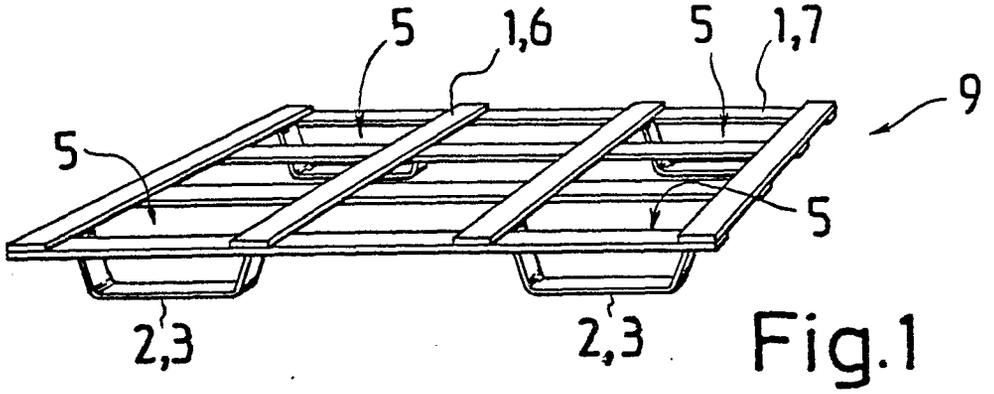

Fig.1

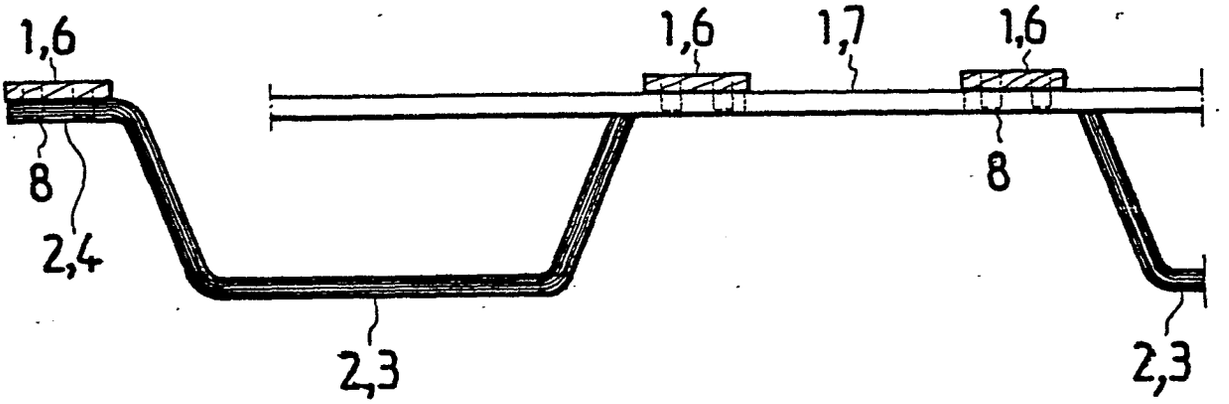

Fig.2

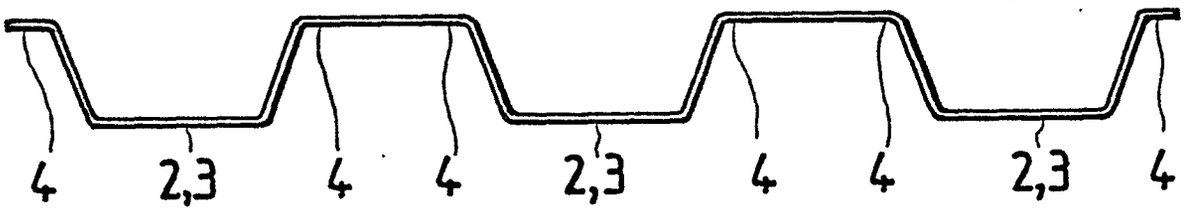

Fig.3

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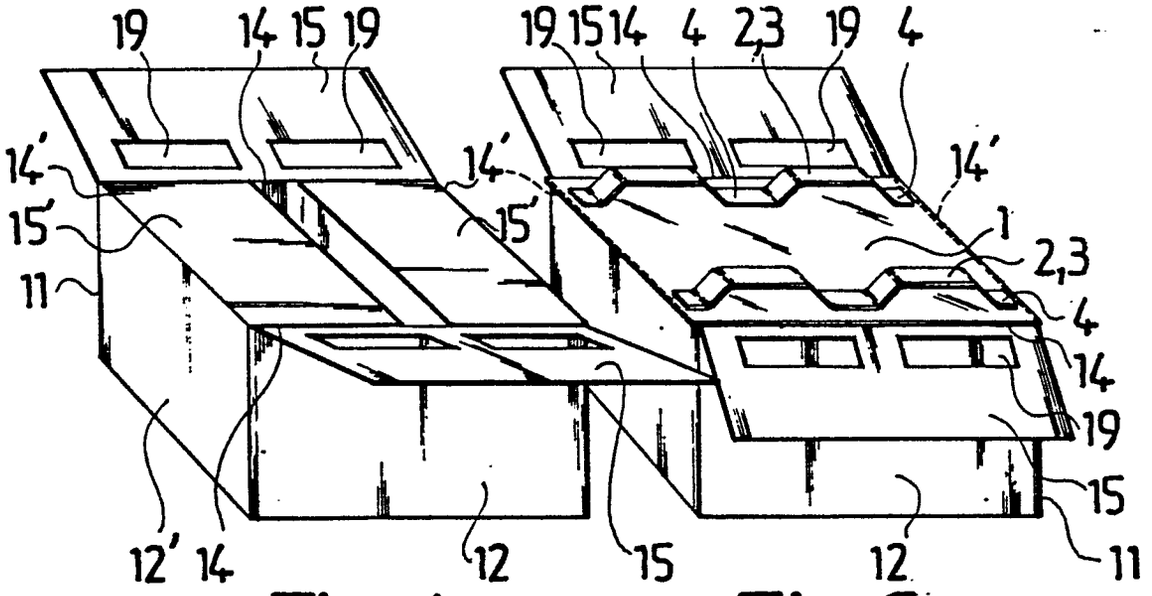

Fig.4 Fig.5

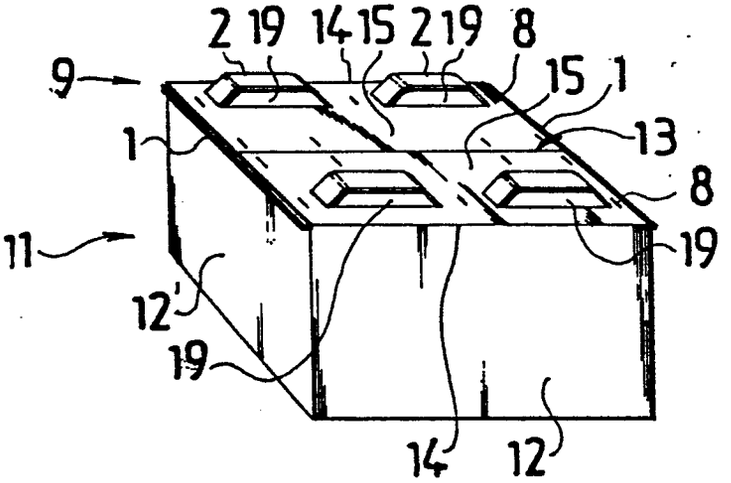

Fig.6

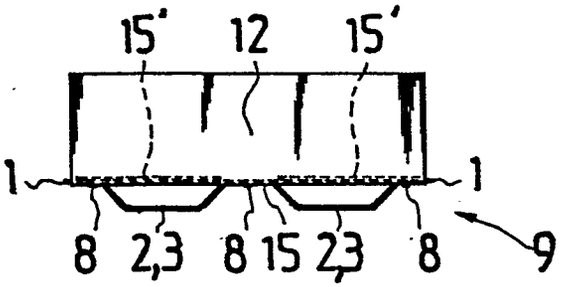

Fig.7