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(54) Containers for palletisation

(57) The present invention relates to A container for palletising and a pallet comprising such containers. Said containers comprising a base and side wall or walls upwards extending from said base, characterised in that it comprises a flange extending outwards from and transverse to said side wall or walls, said flange comprises means restricting relative displacement of said containers in the base of the plan when positioned in overlapping engagement with complementary engagement means of a side-by-side positioned container.

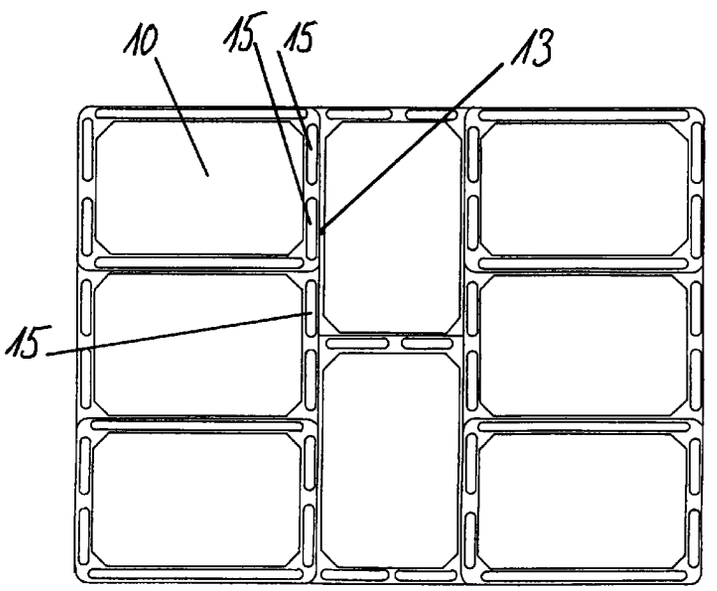

Fig. 4

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Description

The present invention relates to containers for the storage and transportation of goods such as food products, more particularly to a tray that safeguards against sliding or relative displacement of containers in layers stacked or piled onto a pallet.

For the transportation of smaller items such as for example containers with food products e.g. trays with ready meals or salads etc., the containers are conventionally packed into boxes which are then brick-stacked onto pallets. The need for additional packaging of once packed products is, however, undesirable from both a commercial and environmental point of view.

Piling or stacking of containers for transportation onto pallets presents a problem due to sliding or displacing between the side-by-side placed or layered containers. A result of this may be an unstable stack or that containers may fall-off the pallet.

The prior art shows solutions to the problems of sliding or gliding of layers in a stack by inter-locking of the movement of the layers of containers by means of upwardly protruding projections formed in the top part of containers in one layer, engaging with the base of the upper layer containers. Engagement between the containers within one layer are e.g. performed by means of separate loose connectors which are positioned above protruding projections on neighbouring containers. For many purposes e.g. the automated packing and stacking position of such separate connectors complicates the stacking and is time consuming.

There is therefore a need for container which can be arranged and stacked directly onto a pallet allowing for an inter-locking of the containers and which eliminates the need for backing the containers into boxes or additional connectors. The containers should be engaged and separated easily when dismantling the stack of containers. The aim of the present invention is to provide containers which fulfil these needs.

Furthermore, it is an aim of the invention to provide a container the organising or arrangement of which allows for a freedom to position the trays in various configurations e.g. by allowing one side of a container to be inter-locked with more than one other container. Such variations in the position of containers are for example desirable in order to provide a more rigid or stable stacking of containers.

Accordingly, the present invention provides a container for palletising comprising a base and side wall or walls upwards extending from said base,

characterised in that it comprises a flange extending outwards from and transverse to said side wall or walls, said flange comprises means restricting relative displacement of said containers in the base of the plan when positioned in overlapping engagement with complementary engagement means of a side-by-side positioned container.

The devised system of containers is particularly suitable for keeping control of the position of containers placed side-by-side over an area and which layers of containers are piled thereon.

In the present context the engagement means provides geometrical restriction to relative displacement between containers. In particular to the movement within one layer of containers. Depending on the use of the containers it may be desirable to tightly affix the containers to one another. However, for an easy assembling and dissembling of a layer of the containers the tolerance for relative movement may be e.g. 0.1 to 0.1 mm. allowing the engagement means to be placed in overlapping position by descending one flange substantially vertically onto the complementary flange.

In a special advantageous embodiment of the invention, the containers may be positioned so that they add additional rigidity to the layer of containers. In this embodiment, engagement means positioned along one side wall allow(s) for engagement with a plurality of trays along said side wall. This makes a brick-engagement possible wherein e.g. one container engages with two containers which again engages with other containers along the same line or plane. Further, the containers may be combined with containers of different shapes of side and base but with corresponding engagement means.

The flange extends outwards from and transverse to the side wall or walls. It may e.g. extend from the side wall or walls halfway up it(them). However, it is preferred that its peripheral flange extends from the top of the side wall or walls. The flange may encircle the side wall or walls. Alternatively, one or more separate flanges may be provided along the side wall or walls. Advantageously, the flange is such that when the base is positioned on a support the flange extends substantially parallel with the support.

For most purposes it is desirable that the containers have a substantially rectangular base and top e.g. an upwardly opened tray, although it should be appreciated that other shapes may be suitable e.g. polygonal, cylindrical or curved shapes. The side walls are conveniently substantially right angular to the base or slightly outwardly leaning. If the container is cylindrical only one side wall will extend from the base.

For the geometrical restriction of the displacement of the containers' the engagement means preferably comprises male and female engagement means. These may be in the form of projection(s) and openings(s) or groove(s) respectively adapted for engagement with opening(s) or groove(s), projection(s) and projection(s). In a favourable embodiment the projections extend substantially parallel to the side wall(s) and is/are of elongated configuration. The projection(s) may be provided with leaning walls which, in overlapping association with corresponding groove(s) or openings(s) provide(s) a wedging of the flanges of the containers together, so as to tightly fit the flanges together.

Conveniently, the containers are made from plastic

material e.g. polyvinyl chloride, polystyrene, polypropylene etc. The plastics may conveniently be formed by thermo-shaping or injection moulding. It is preferred that projections are moulded in the upper or lower side of the flange and said moulding generates corresponding groove in the upper site side of the flange.

When convenient, the container may be provided with a lid for covering or sealing off products in the container. It has been found that for the embodiment of the container having a flange extending outwards from the upper edge of the side wall or walls and having e.g. projections and grooves shaped therein the lid may advantageously be used comprising corresponding projection and grooves which will allow the lid to be re-closable on the container. It is desirable that the lid is sealed e.g. with a pealable seam to the container e.g. for conservation and transportation purposes.

If the containers have outwards leaning side walls they may be suitable for nestling.

For safe transportation even under extreme conditions a restriction of the movement between the layers of containers may be desirable. For this the container according to the invention may e.g. have male and/or female parts formed in the base of the container and/or the top of the side walls, to safeguard against any substantially lateral slipping or sliding of containers in one layer relative to containers, in an adjacent layer.

When arranging the containers the first layer of containers are preferably positioned on a base or support. The containers in that layer are arranged in an engaging or inter-locking manner and subsequent layers could be stacked thereon if necessary. To protect and/or support the stack of containers, it may be covered with a plastic film.

The invention also relates to such a pallet comprising a support base, at least one layer of a plurality of containers as described above and a film material at least partly covering said containers for the support thereof.

The trays or containers according to the invention may also be used for combining a plate for a meal consisting of different dishes or components such as e.g. an air-meal, hospital-meal etc.

The invention will now be described in further detail by way of example only, with reference to the accompanying drawings, wherein

Fig. 1 shows a principle drawing of top-down view of a container according to the invention,

Fig. 2 shows a principle drawing of a side view of the container in Fig. 1,

Fig. 3 shows containers arranged with overlapping and engaging flanges,

Fig. 4 shows containers arranged with overlapping and engaging flanges, and

Fig. 5 shows a principle drawing of a lid for the container according to the invention.

The containers according to the invention may be positioned in various configurations. However, for the purpose of illustrating the principle thereof the following advantageous use of the containers is exemplified.

Fig. 1 illustrates a top-down view and Fig. 2 side view of a container 10 in the form of a tray. It comprises a base 11 with outwards leaning walls 12 upwards extending from said base. The container 10 additionally comprises a flange 13 extending outwards from and transverse to said walls 12 from the top edge of said walls 12. The flange 13 comprises means 14 restricting relative displacement of said containers in the base of the plan when positioned in overlapping engagement with complementary engagement means of a side-by-side positioned container, see Fig. 3.

As will appear from the Figures 1 and 2 the base 11 is rectangular and engagement means 14 are provided along each side wall 12a, 12b, 12c, and 12d. The engagement means 14 comprises male and female engagement means in that projections 15 are moulded in the lower part of the flange and said moulding generates grooves 16 in the upper side of the flange 13.

One long groove 16a is running along the long side of the rectangular tray 10 while two grooves 16b and 16c is defined in the short side of the tray 10. This allows trays 10 to be combined and inter-locked in different positions as will be apparent from Figures 3 and 4.

The projections 15 have leaning walls which in the present embodiment preferably are about 10° from a right angle to the plane of the base 11.

Figures 3 and 4 show side-by-side and inter-engaged positions of trays illustrated in Figures 1 and 2. In Fig. 3 the flange along each side wall 12 is engaged with one side wall 12 of a neighbouring tray. In Fig. 4 the long side wall is provided with a groove 16 which is in engagement with 3 projections 15 of two trays 10. In this, the flange 13 along one side of a first tray 10 engages with flanges 13 of two other trays 10 positioned along said side of said first tray.

Fig. 5 shows a lid 19 which may advantageously be used comprising projection 17 and grooves 18 which correspond to those of the container or tray 10 and which can engage with these. The lid 19 allows the container to be re-closed.

Claims

1. A container for palletising comprising a base and side wall or walls upwards extending from said base,

   characterised in that it comprises a flange extending outwards from and transverse to said side wall or walls, said flange comprises means restricting relative displacement of said containers in the base of the plan when positioned in overlapping engagement with complementary engagement means of a side-by-side positioned container.

2. A container according to claim 1, wherein the engagement means positioned along one side wall allow(s) for engagement with a plurality of trays along said side wall.

3. A container according to claims 1 and 2, wherein the flange peripheral extends from the top of the side wall(s).

4. A container according to claim 1 to 3, wherein the base is rectangular and engagement means are provided along each side wall.

5. A container according to claims 1 to 4, wherein the engagement means comprises male and female engagement means.

6. A container according to claim 5, wherein the engagement means comprises projection(s) and openings(s) or groove(s) respectively adapted for engagement with opening(s) or groove(s), projection(s) and projection(s).

7. A container according to claims 5 and 6, wherein the projection(s) is/are moulded in the upper or lower side of the flange and said moulding generates corresponding groove(s) in the upper site side of the flange.

8. A container according to claims 1 to 9, wherein the container is of thermo-shaped or injection moulded plastic(s).

9. A container according to claims 1 to 8, wherein the container is provided with a lid which comprises engagement means corresponding to those of the flange of the container.

10. A container according to claims 1 to 9, wherein the base of the container and/or the top of the side walls are provided with inter-locking means to safeguard against lateral sliding of containers in one layer relative to containers in an adjacent layer.

11. A pallet comprising a support base, at least one layer of a plurality of containers according to claims 1 to 10, and a film material at least partly covering said containers for the support thereof.

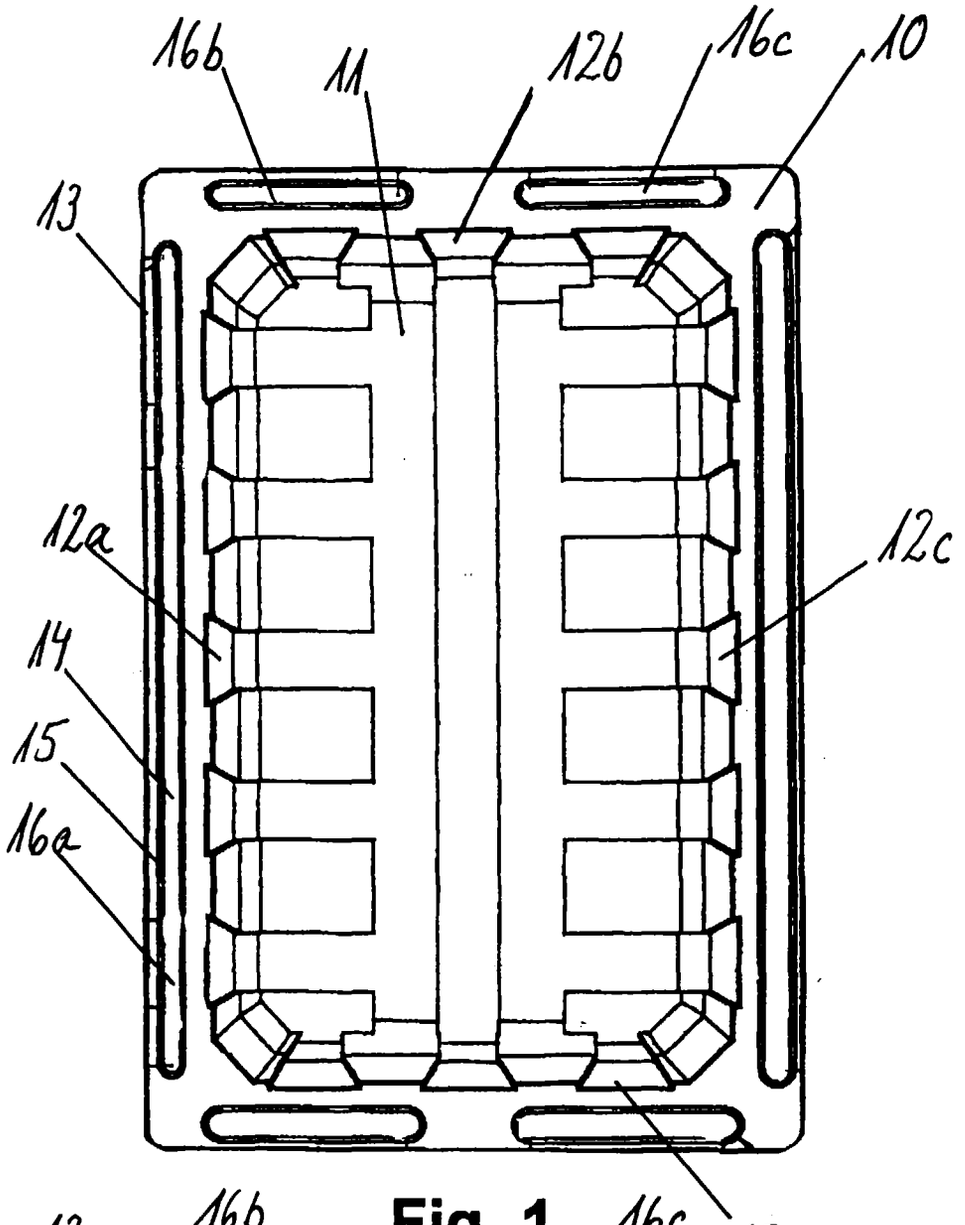
16b
11
12b
16c
10
13
12a
12c
14
15
16a
12d

Fig. 1

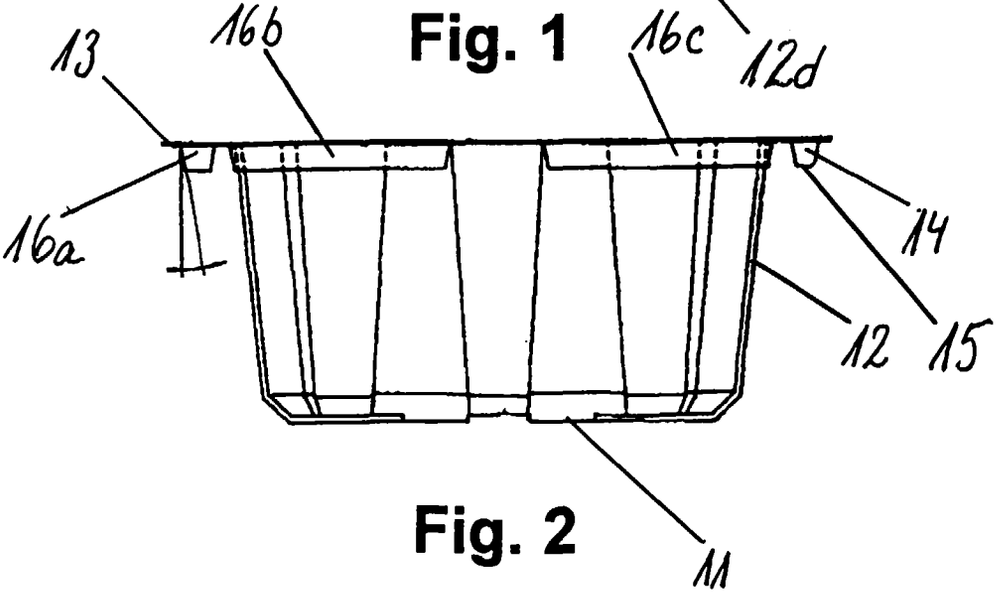
13
16b
16c
16a
14
12
15
11

Fig. 2

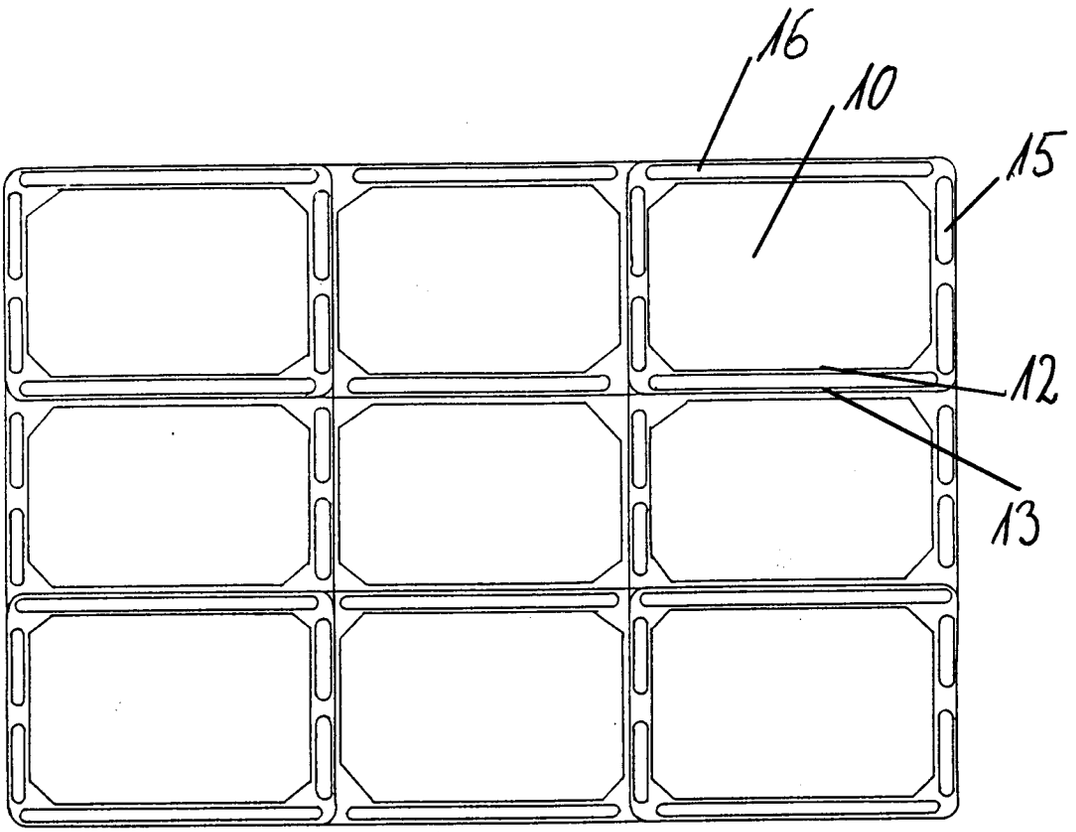

Fig. 3

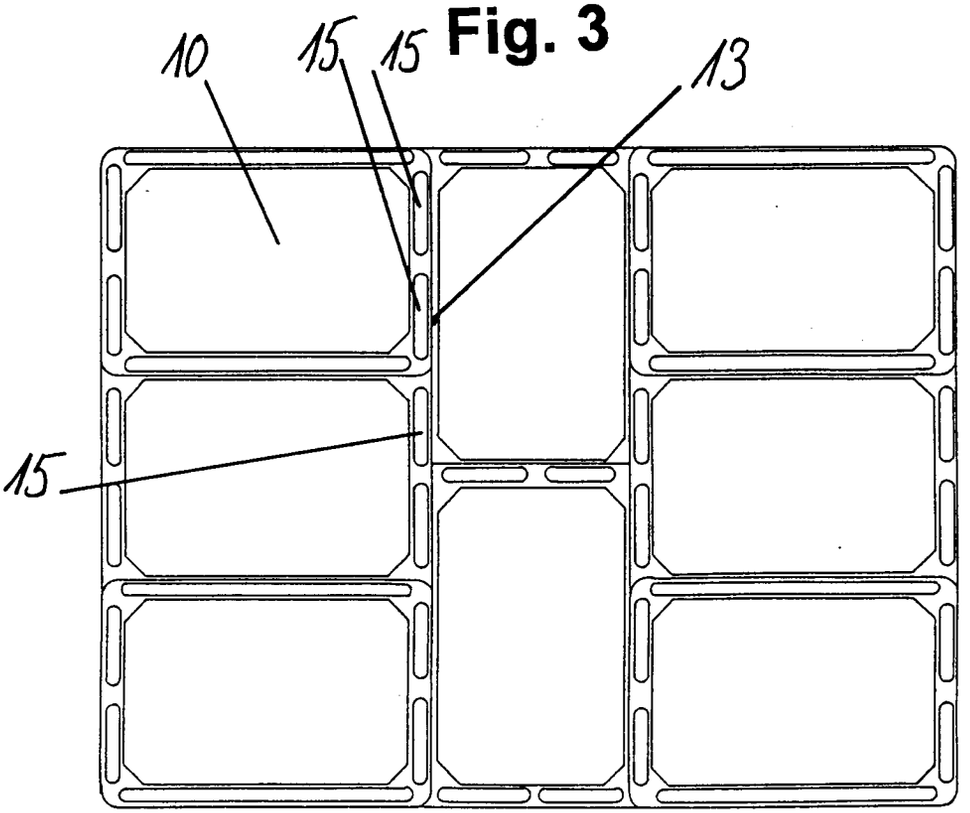

Fig. 4

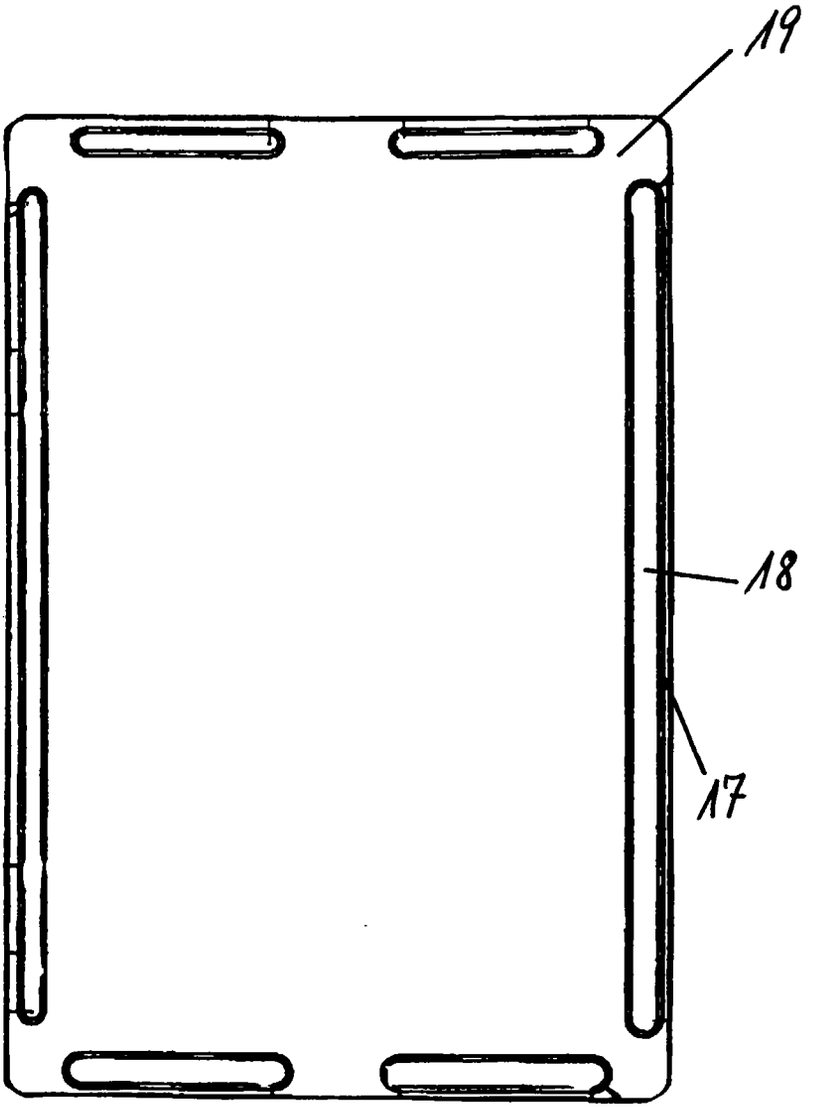

Fig. 5

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EUROPEAN SEARCH REPORT

Application Number
EP 96 20 2069

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.6)
X Y	US-A-1 588 271 (SAINT ET AL.) 8 June 1926 * the whole document *	1-4,8 5-7,9-11	B65D21/02
Y	DE-A-39 24 138 (EBERLEIN & CO INH WILLI LIEB) 31 January 1991 * column 2, line 8 - line 43; figures *	5-7,9	
Y	US-A-3 968 879 (LUCAS SR GEORGE ANTHONY ET AL) 13 July 1976 * column 4, line 40 - line 66; figures *	10,11	
A	EP-A-0 509 325 (SCHAEFER GMBH FRITZ ;TGW TRANSPORTGERAETE GMBH & CO (AT)) 21 October 1992 * column 5, line 8 - line 46; figures *	1	
A	DE-A-37 41 350 (STABERNACK GMBH GUSTAV) 15 June 1989 * column 2, line 10 - column 3, line 2; figure 1 *	1	
A	US-A-5 531 327 (DARBY) 2 July 1996 * column 3, line 14 - line 28; figure 1 *	10	TECHNICAL FIELDS SEARCHED (Int.Cl.6) B65D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
BERLIN	19 November 1996	Olsson, B

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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