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(54) **Container for storage**

(57) Storage container (1), comprising a bottom construction (6) and standing side walls (2,3,4,5). The side walls (2,3,4,5) are hingedly connected to the bottom construction (6). The side walls (2,3,4,5) can be folded down onto the bottom construction (6). At least one side wall (3,5) is divided into successive segments (10,11 ;12,13),

wherein successive segments (10,11,12,13) are arranged hingedly relative to each other over substantially a whole width of the at least one side wall (3,5). A plurality of storage containers (1) can be stacked onto each other in a stable stack in upright position of the side walls (2,3,4,5) and/or in folded-down position of the side walls (2,3,4,5).

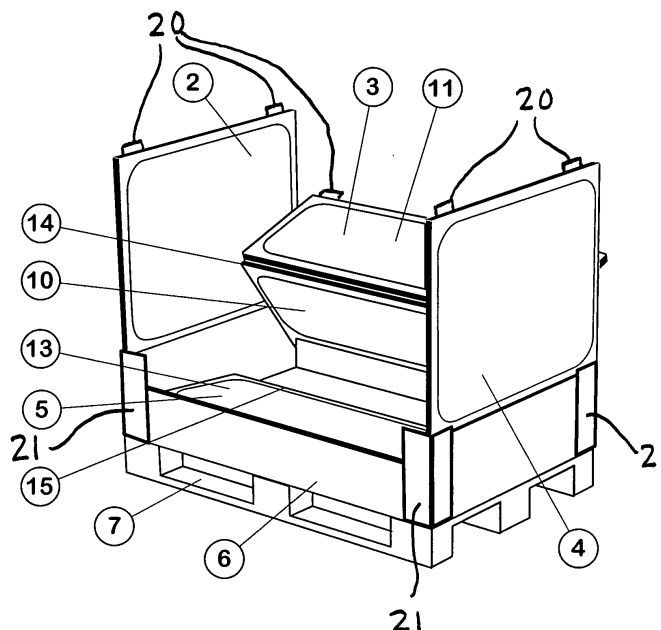


Fig 4

Description

[0001] The invention relates to a storage container, comprising a bottom construction and standing side walls, wherein the side walls are hingedly connected to the bottom construction, wherein the side walls can be folded down onto the bottom construction and wherein at least one side wall is divided into successive segments, and wherein successive segments are arranged hingedly relative to each other over substantially a whole width of the at least one side wall.

[0002] Such a storage container with a rectangular form is known in practice. The height of a side wall is reduced along the whole width thereof by folding an upper-lying segment of the side wall back over an adjacent segment lying thereunder. Loading and unloading of the storage container is thus facilitated. By folding down the side walls after use the storage container acquires a compact form, which is advantageous for instance during storage or return of the storage container.

[0003] A drawback of the known storage container is that storage containers which are stacked onto each other in the folded-down or upright position of the side walls can easily displace relative to each other. A stack of storage containers can hereby fall over easily during transport by truck, for instance as a result of sudden braking. This can cause damage to the storage container itself, to goods present in the storage container or to other goods present in a loading space of the truck.

[0004] It is an object of the invention to provide a storage container of the type stated in the preamble in which this drawback is obviated to an at least significant extent.

[0005] A storage container of the type stated in the preamble is characterized for this purpose in that a plurality of storage containers can be stacked onto each other in a stable stack in upright position of the side walls and/or in folded-down position of the side walls. Relative displacement of storage containers in a stack of storage containers is prevented. The chance of a stack of storage containers tipping over is thus greatly reduced, even for instance in the case of a hard impact against the stack. The storage container is therefore particularly suitable for use in a loading space of a container, for instance for a semitrailer.

[0006] A preferred embodiment of the storage container is characterized according to the invention in that the storage container has standing parts which extend from the bottom construction for the purpose, in the folded-down position of the side walls, of nesting between the standing parts an underside of a further storage container placed on the storage container. The standing parts have the additional advantage that they can form a support for the side walls of the storage container, so that the side walls can remain standing upright independently when they have not yet been fixed in a standing position. Placing of the storage container into a ready-to-use position from a position in which the side walls are folded down is hereby made easier. A further preferred embodiment

of the storage container is characterized according to the invention in that the standing parts comprise profiles with a right-angled progression, wherein the profiles are provided at the position of corner points of the bottom construction. The profiles also increase the strength of the storage container. The profiles form protective structural parts for the storage container when the profiles are arranged externally relative to the bottom construction. The chance of damage to the storage container by impacts against the bottom construction at the position of a corner point thereof is thus reduced.

[0007] A particular embodiment of the storage container is characterized according to the invention in that the storage container is provided with standing elements extending from a top side of at least two side walls for the purpose, in the standing position of the side walls, of nesting between the standing elements an underside of a further storage container placed on the storage container. Upper edges of the side walls of the storage container can herein form a support surface for the underside of the further storage container. Movement of the further storage container in lateral direction is prevented by the standing elements.

[0008] The segments preferably have roughly the same height and/or the same width, whereby production of the storage container is simplified. In an embodiment a set of opposite side walls of the storage container is divided into segments.

[0009] In a further preferred embodiment a height dimension of the at least one side wall is greater than a distance between the at least one side wall and an opposite side wall. In the case for instance that two opposite side walls divided into segments each have a height dimension greater than a distance between the two side walls, higher products can be transported in the storage container without protruding above it. It remains possible here to fold down both side walls onto the bottom construction in the empty state of the storage container: by folding adjacent segments over each other both side walls are reduced in height so that neither side wall will obstruct folding down of the other. Nor will the two side walls in folded-down position then protrude laterally outside the bottom construction.

[0010] In a further preferred embodiment a length dimension and a width dimension of the storage container amount respectively to about 1200 mm and 800 mm, or respectively about 800 mm and 800 mm.

[0011] The invention will now be further elucidated on the basis of an exemplary embodiment and an associated drawing. In the drawing:

- Figure 1 shows an exemplary embodiment of a storage container according to the invention with standing side walls.
- Figures 2-6 show folding down of the side walls of the storage container shown in fig. 1.
- Figure 7 shows the storage container of figure 1 with folded-down side walls.

[0012] The figures are otherwise purely schematic and not drawn to scale. Some dimensions in particular may be exaggerated to greater or lesser extent for the sake of clarity. Corresponding parts are designated as far as possible in the figures with the same reference numeral.

[0013] The rectangular storage container 1 shown in figure 1 has side walls 2,3,4,5 and a bottom 8 for placing of products thereon. Side walls 2,3,4,5 are mounted hingedly on a bottom construction 6 arranged on a pallet 7, and are fixedly connected to bottom construction 6 so that storage container 1 always forms one whole. A length and width dimension of storage container 1 or of pallet 7 amount in this example to respectively about 1200 mm and 800 mm. An internal height of storage container 1 amounts to about 880 mm; the internal height is understood to mean the height between bottom 8 and an upper edge of a side wall 2,3,4,5. In this exemplary embodiment the internal height is greater than the width of storage container 1 (the internal height is greater than the smallest width dimension of side walls 2,3,4,5). A height h of side walls 3,5 is greater than a distance d therebetween (the distance d is roughly equal to the width of storage container 1 or of pallet 7). Profiles bent at right angles (standing parts) 21 extending from bottom construction 6 are provided at the position of corner points of bottom construction 6.

[0014] Side wall 3 is divided into segments 10,11 arranged one above the other and mutually connected by means of hinge 14. Side wall 5 is likewise divided into segments 12,13 which are mutually connected by means of hinge 15. Side walls 2,3,4,5 are further provided with coupling elements for coupling adjacent side walls 2,3,4,5 to each other so as to hold them in standing position. These coupling elements are per se known and not further discussed. Side walls 2,3,4,5 are further provided on their upper edges with tongues (standing elements) 20. Between tongues 20 can be nested an underside of a further storage container placed on storage container 1. The underside of the further storage container herein rests on the upper edges of side walls 2,3,4,5. In the upright position of side walls 2,3,4,5 a plurality of storage containers 1 can herein be stacked on each other in a stable stack.

[0015] The respective upper segments 11,13 can be folded back over lower segments 10,12 as shown in fig. 2. Upper segments 11,13 can herein be folded down from the position shown in fig. 1 through about 180° against lower segments 10,12; this fully folded-down situation of upper segments 11,13 over the standing lower segments 10,12 is for instance suitable for loading and unloading of storage container 1.

[0016] From the situation shown in fig. 2 the side walls 3,5 can be folded down by first folding down for instance side wall 5 as shown in fig. 3 and 4. Side wall 5 is herein folded down with the upper segment 13 folded back over lower segment 12. Side wall 3 is then folded down in similar manner as shown in fig. 4 and 5. Folding down of side walls 2,3,4,5 is then completed by successively fold-

ing down side walls 4,2 as shown in figures 5, 6 and 7. The reverse sequence of that described above is followed in order to fold up side walls 2,3,4,5 from the situation shown in fig. 7. When side walls 2,3,4,5 are folded down as shown in figure 7, a further storage container can be nested with an underside thereof between profiles 21. A plurality of storage containers 1 with folded-down side walls 2,3,4,5 can thus be stacked onto each other in a stable stack. Profiles 21 further impart strength to storage container 1 and form protective structural parts for storage container 1. This therefore greatly reduces the chance of damage to storage container 1 by impacts against it at the position of a corner point of bottom construction 6.

[0017] Loading and unloading of storage container 1 is simplified by (fully) folding upper segments 11,13 back over the respective lower segments 10,12 from the situation shown in fig. 1, since it is then not necessary to reach so high. Because side walls 3,5 are then reduced in height along the whole width thereof, it is for instance possible to load and unload with a number of people via these lowered side walls 3,5. In an alternative embodiment the side walls 2,3,4,5 can have a greater height, for instance 1000 mm or more. Side walls 3,5 are reduced in height by folding upper segments 11,13 back over lower segments 10,12, so that the one standing side wall will not impede folding down of the other opposite side wall. Both side walls 3,5 can thus be folded down onto bottom construction 6, wherein in the folded-down position the two side walls 3,5 do not protrude laterally relative to bottom construction 6. Due to the greater allowable height of side walls 2,3,4,5 it becomes possible to transport higher products in storage container 1 without these protruding above storage container 1.

[0018] Although the invention has been further elucidated on the basis of only one exemplary embodiment, it will be apparent that the invention is by no means limited thereto. On the contrary, many variations and embodiments are still possible within the scope of the invention for a person with ordinary skill in the art.

Claims

1. Storage container, comprising a bottom construction and standing side walls, wherein the side walls are hingedly connected to the bottom construction, wherein the side walls can be folded down onto the bottom construction and wherein at least one side wall is divided into successive segments, and wherein successive segments are arranged hingedly relative to each other over substantially a whole width of the at least one side wall, **characterized in that** a plurality of storage containers can be stacked onto each other in a stable stack in upright position of the side walls and/or in folded-down position of the side walls.

2. Storage container as claimed in claim 1, **characterized in that** the storage container has standing parts which extend from the bottom construction for the purpose, in the folded-down position of the side walls, of nesting between the standing parts an underside of a further storage container placed on the storage container. 5
3. Storage container as claimed in claim 2, **characterized in that** the standing parts comprise profiles with a right-angled progression, wherein the profiles are provided at the position of corner points of the bottom construction. 10
4. Storage container as claimed in claim 1, 2 or 3, **characterized in that** the storage container is provided with standing elements extending from a top side of at least two side walls for the purpose, in the standing position of the side walls, of nesting between the standing elements an underside of a further storage container placed on the storage container. 15
20
5. Storage container as claimed in one or more of the foregoing claims, **characterized in that** the segments have roughly the same height. 25
6. Storage container as claimed in one or more of the foregoing claims, **characterized in that** the segments have roughly the same width. 30
7. Storage container as claimed in one or more of the foregoing claims, **characterized in that** a set of opposite side walls of the storage container is divided into segments. 35
8. Storage container as claimed in one or more of the foregoing claims, **characterized in that** a height dimension of the at least one side wall is greater than a distance between the at least one side wall and an opposite side wall. 40
9. Storage container as claimed in one or more of the foregoing claims, **characterized in that** the at least one side wall is divided into two, three or four segments. 45
10. Storage container as claimed in one or more of the foregoing claims, **characterized in that** an upper segment of two successive segments is pivotable in outward direction relative to the storage container. 50
11. Storage container as claimed in one or more of the foregoing claims, **characterized in that** a distance between a bottom surface of the storage container and an upper edge of a side wall amounts to about 880 mm or 1200 mm. 55
12. Storage container as claimed in one or more of the

foregoing claims, **characterized in that** a length dimension and a width dimension of the storage container amount respectively to about 1200 mm and 800 mm, or respectively about 800 mm and 800 mm.

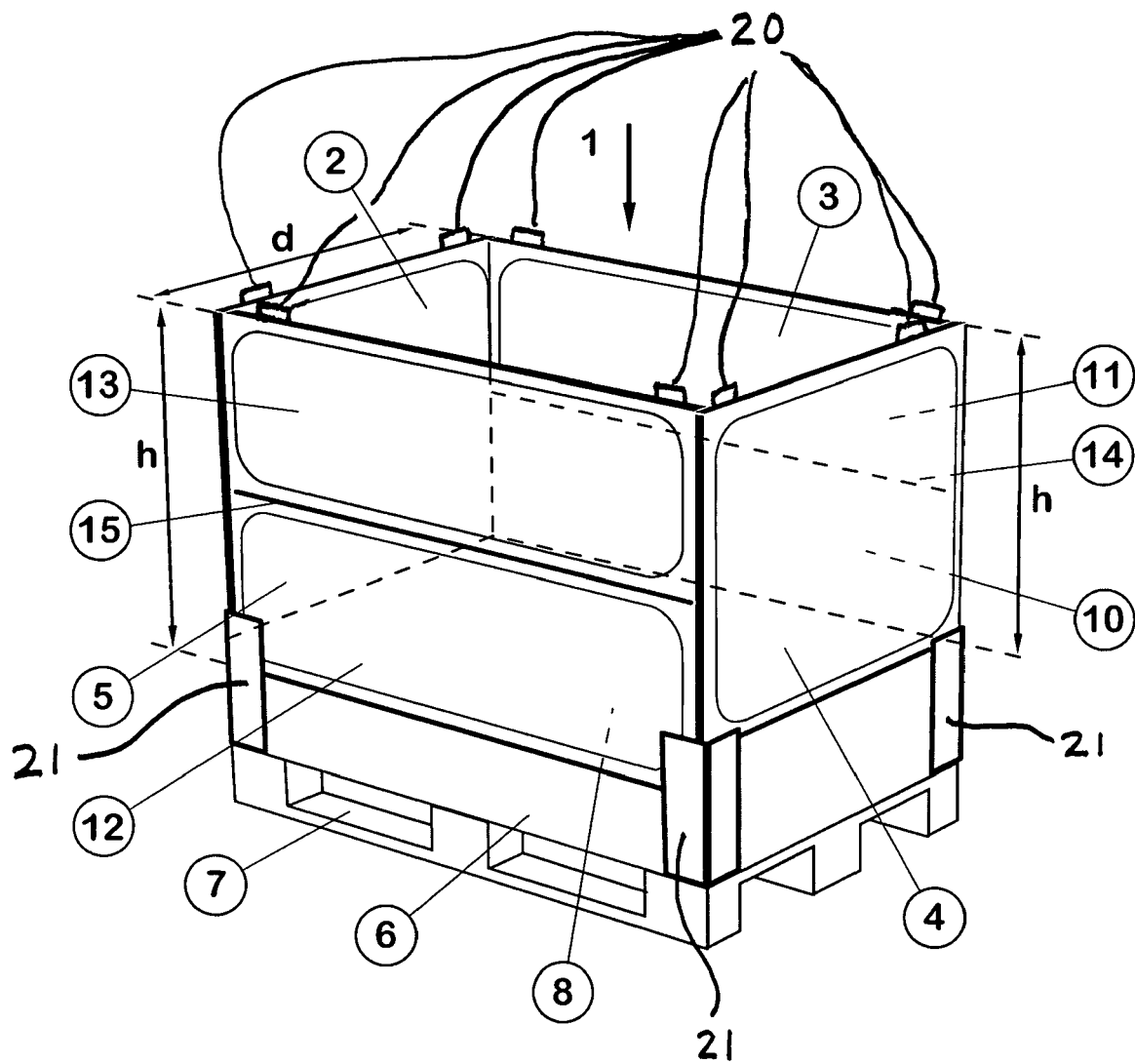


Fig 1

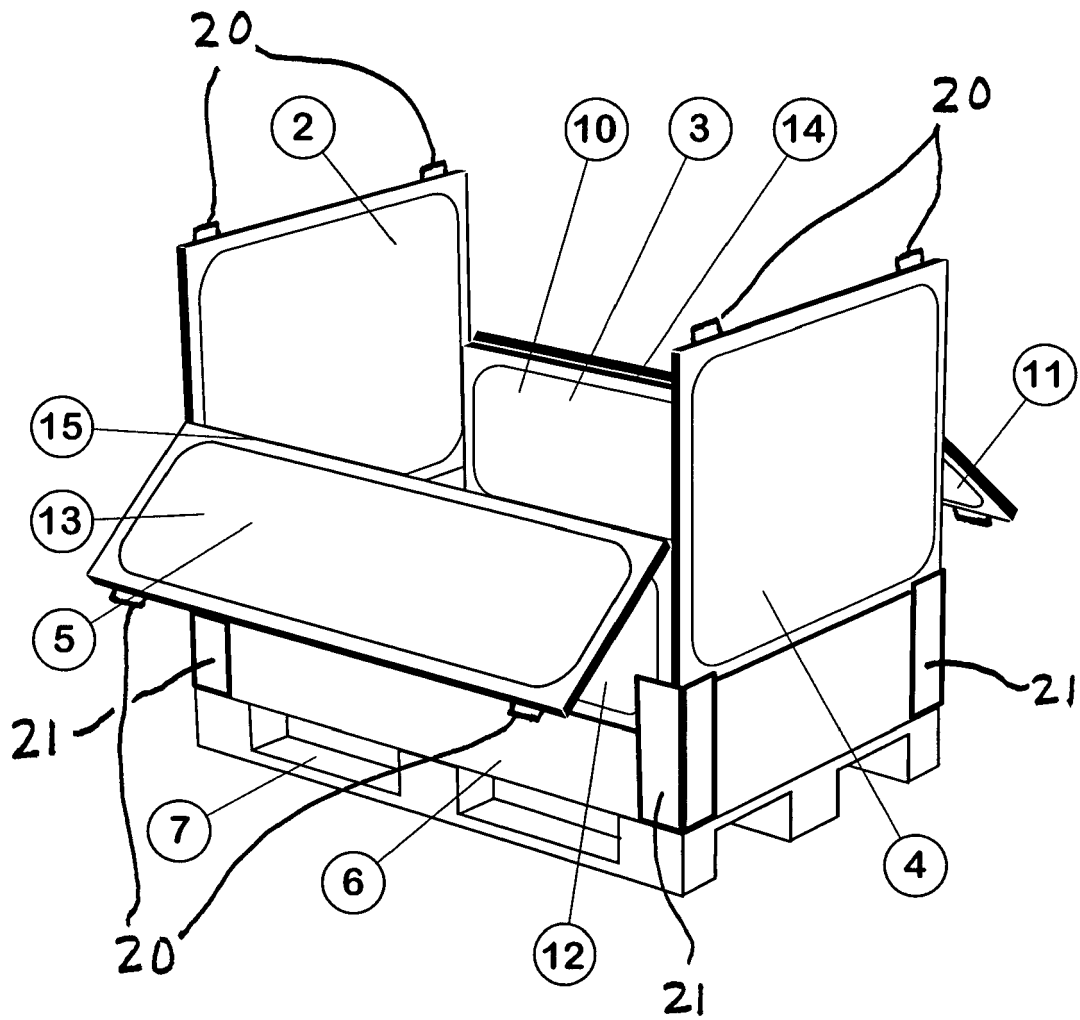


Fig 2

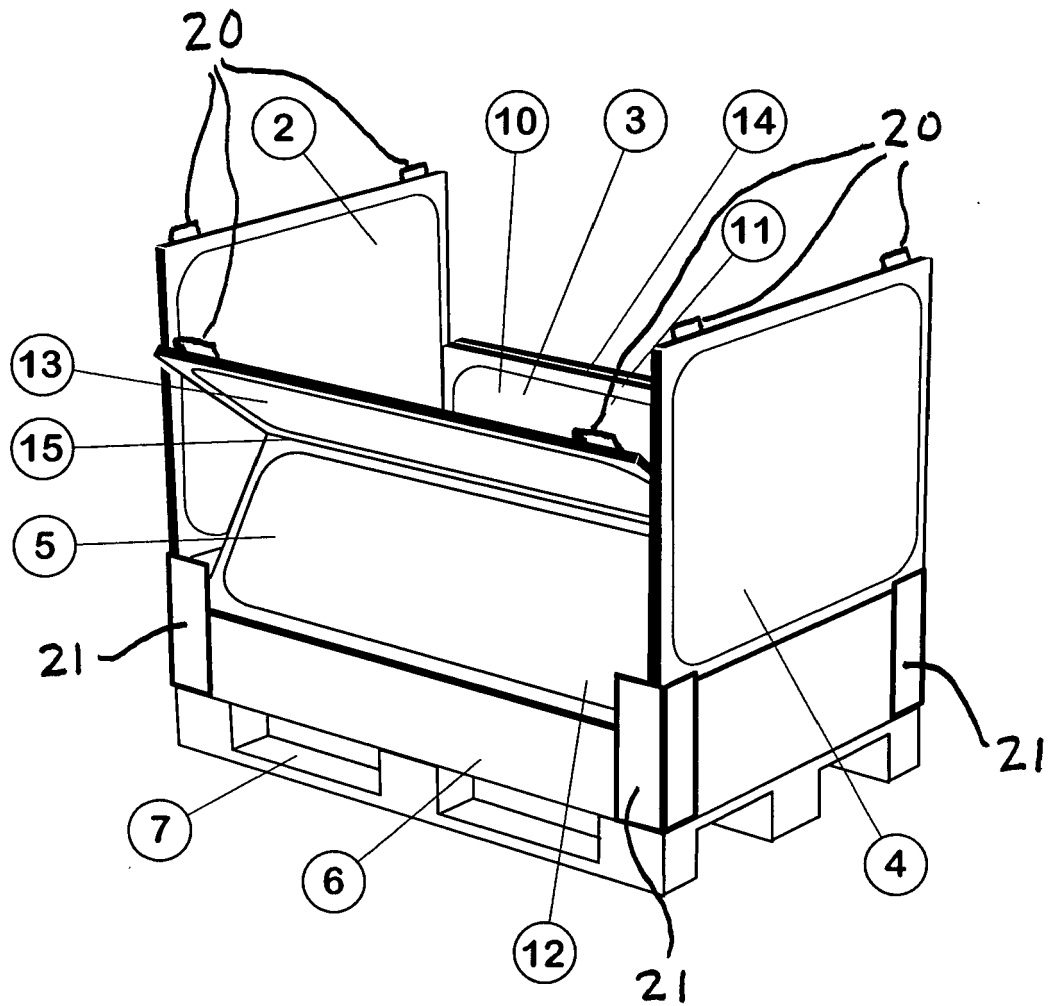


Fig 3

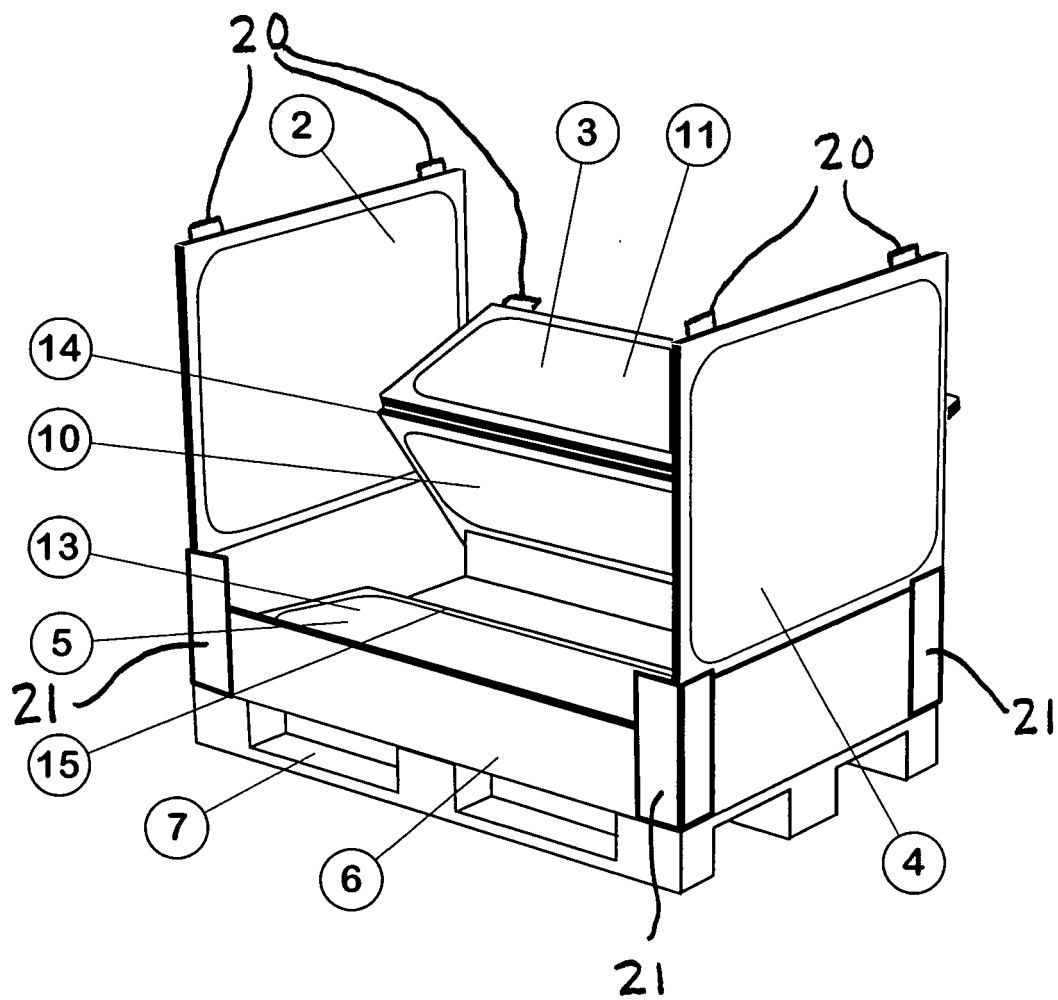


Fig 4

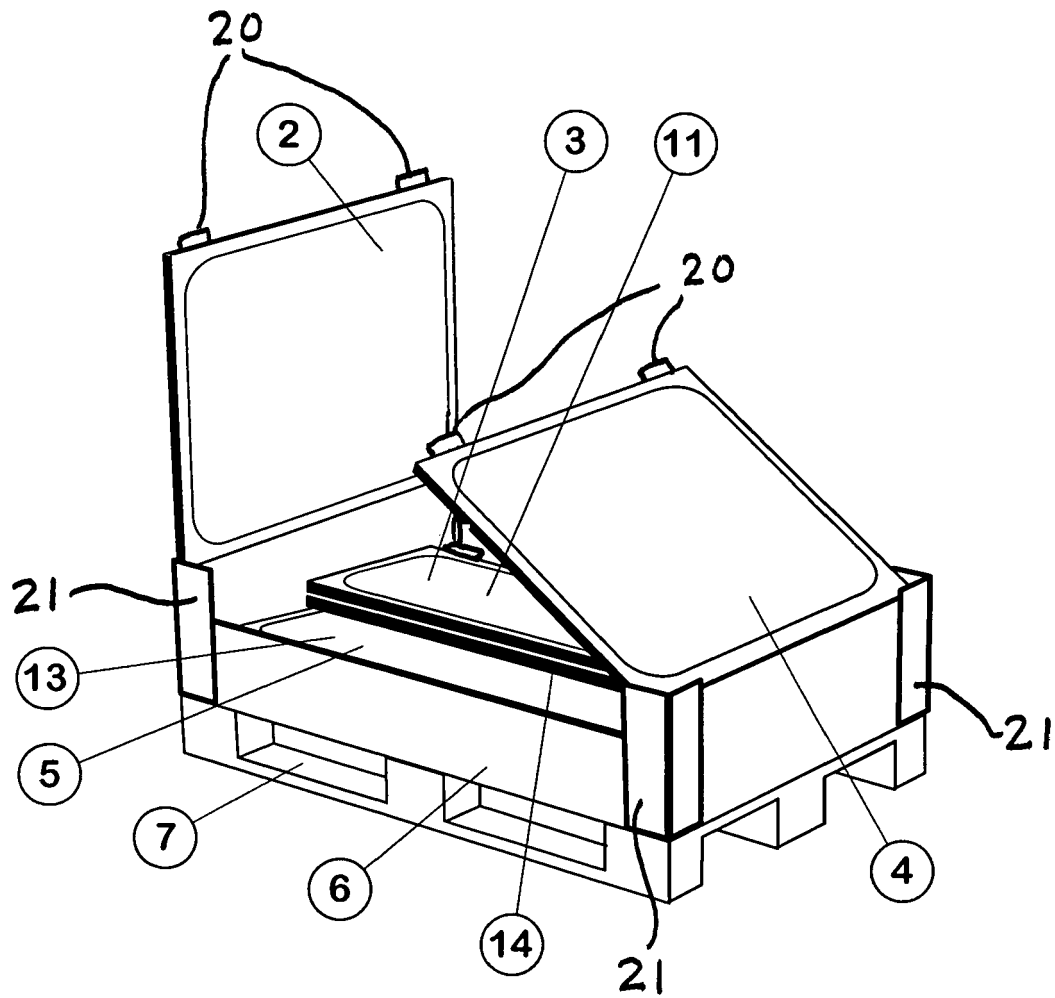


Fig 5

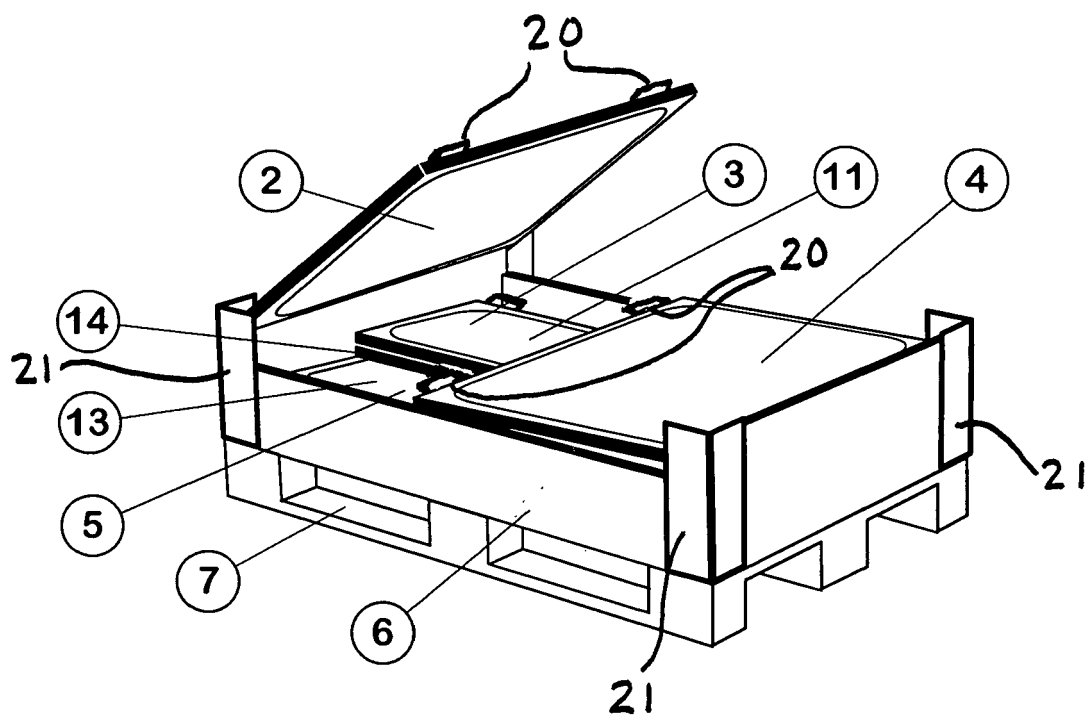


Fig 6

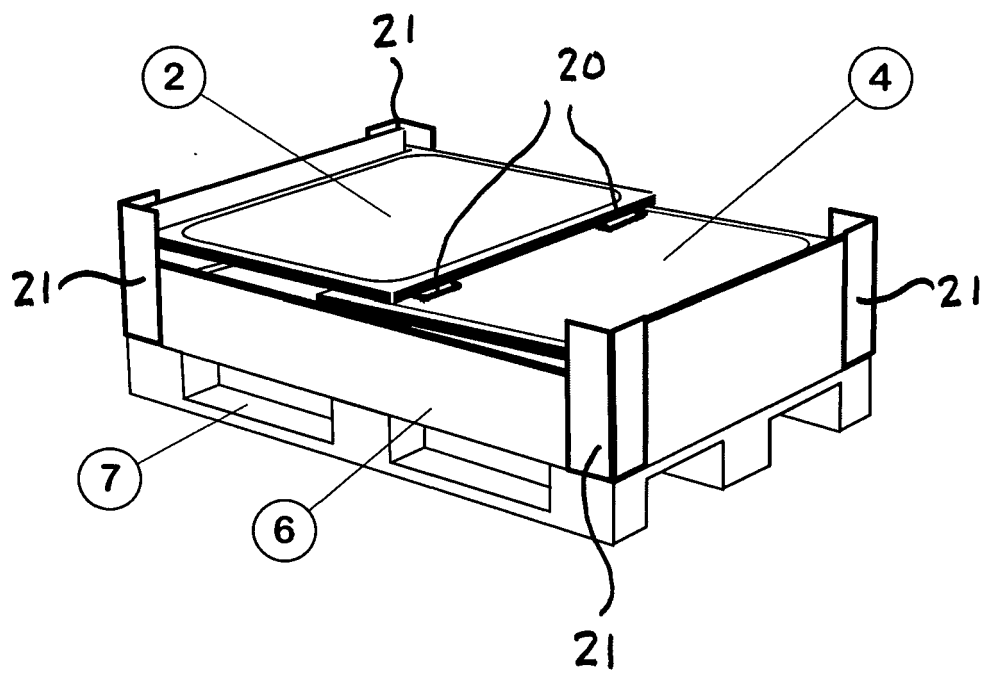


Fig 7



DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 19 September 2006	Examiner Pernice, Ciro
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	

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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 06 01 0351

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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