



(12) **EUROPEAN PATENT APPLICATION**
published in accordance with Art. 153(4) EPC

(43) Date of publication:
23.01.2008 Bulletin 2008/04

(51) Int Cl.:
B65D 88/18 (2006.01) B65D 88/20 (2006.01)

(21) Application number: **06743475.3**

(86) International application number:
PCT/ES2006/000234

(22) Date of filing: **11.05.2006**

(87) International publication number:
WO 2006/120270 (16.11.2006 Gazette 2006/46)

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI SK TR

(72) Inventors:
• **ROVIRA FONTANALS, Carlos**
08800-vilanova i la Geltru (Barcelona) (ES)
• **ROVIRA FONTANALS, Juan Ernesto**
08800-Vilanova i la Geltru (Barcelona) (ES)

(30) Priority: **13.05.2005 ES 200501154**

(71) Applicant: **Rovira Garraf S.A.**
08812 Las Roquetas-Sant Pere de Rives (ES)

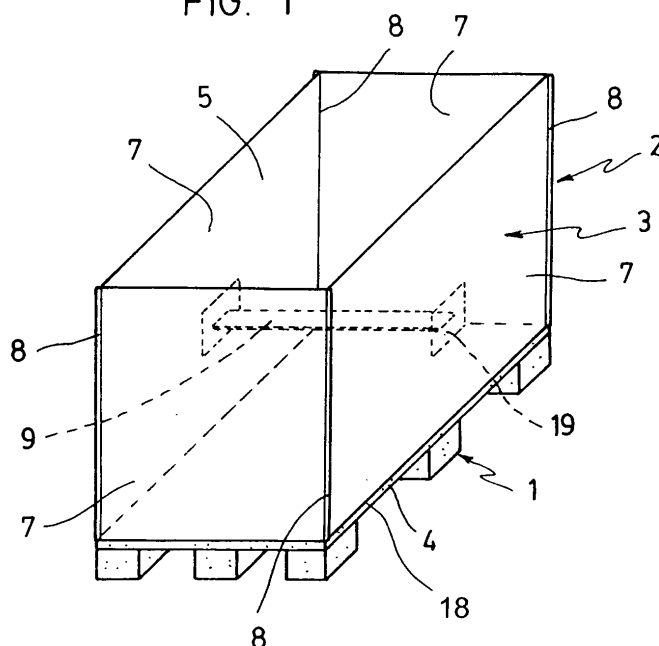
(74) Representative: **Curell Sunol, Marcelino**
c/o Dr. Ing. M. Curell Sunol I.I. S.L.
Agentes de la Propiedad Industrial
Passeig de Gràcia 65 bis
08008 Barcelona (ES)

(54) **FOLDING CONTAINER FOR THE TRANSPORT AND/OR STORAGE OF GOODS**

(57) Foldable container for transporting and/or storing goods, of the type comprising a rigid base structure (1) and a container element (2) which contains the goods. Container element (2) is made up of a foldable bag (3), made from a foldable laminar material, which at its bottom end is closely joined to rigid base structure (1), so that the latter defines, either directly or through the laminar

material being embedded forming the bag (3), a rigid base (4) intended to directly support the goods contained in bag (3). Thanks to its foldable material condition, when bag (3) is empty it is suitable for adopting a completely refolded position on said rigid structure (1) and at least one upright position wherein it has at least one loading mouth (5) that opens directly for introducing goods.

FIG. 1



Description

Field of the invention

[0001] The invention relates to a foldable container for transporting and/or storing goods of the type comprising:

- a container element, which contains said goods consisting of at least one foldable bag made from a foldable laminar material;
- a rigid structure with which the bottom end of said bag is closely joined, so that said rigid base structure defines, directly or through the laminar material being embedded forming said bag, a rigid base intended for directly supporting the goods contained in said bag; and
- reversible shaping means of said bag that is suitable for shaping said bag in at least one upright position wherein said bag has at least one loading mouth that opens directly for introducing goods.

[0002] The expression foldable laminar material should be understood to mean a material with a laminar shape that is suitable for being refolded on itself and, more exactly, suitable for being folded or doubled at any point and in any direction. A foldable laminar material according to this concept can be, for example, a fabric, a net, a mesh, a sheet of thin plastic or any other similar material.

[0003] The type of container to which the invention relates is particularly applicable in the field of logistics, either with industrial goods or parcels.

State of the art

[0004] Typically pallets, normally made of wood, are used for transporting and storing goods. Alternatively, the production industries that have a large volume of fixed clients use metallic containers instead of pallets. In both cases, the process of managing these goods from the point of origin to the point of destination basically consists of the following stages: packaging the manufactured products into parcels for transport, palletizing the parcels with a shrink wrap film, or placing the parcels in metallic containers, loading the pallets or containers in warehouses, transporting (normally in trucks) the pallets or containers, and receiving them in their destination.

[0005] In the field of parcel logistics (post, urgent message services, etc.), the parcels are placed in containers shaped like metallic cages that usually have a base with wheels and can be loaded directly onto trucks for transporting. The parcels are collected from the sender's address and they are taken to a classification base, where they are placed in the metallic cages that are transported by truck, directly or via transit bases, to a delivery base from where the parcels are delivered.

[0006] In both cases, there is a final inverse logistics stage, which consists in managing the return to origin of

the pallets, metallic containers or cages, and also the packing and palletizing material and the transport used to send the goods. In the case of goods transported with pallets, normally only the pallets are returned; the packaging material is thrown away as it is too cumbersome to return to origin. When metallic containers or cages are used, the packaging material is usually reusable and it is returned together with the containers.

[0007] Both in the field of goods and parcel logistics, the operations for loading and unloading the parcels in the pallets, containers or metallic cages are particularly important, as well as the inverse logistics management. When conventional pallets are used, the parcel loading and unloading operations use up considerable resources, since the pallet has to be formed at origin and thrown it away at the destination. However, inverse logistics is helped because only the return of the pallet has to be managed. When metallic containers or metallic cages are used the loading and unloading operations are much simpler, but on the other hand, it is expensive to return the containers or cages to origin, because the latter take up a large space and also they are relatively heavy.

[0008] There are some metallic cage type containers on the market that have collapsible grating walls that enable the container to be folded onto its base, whereby it is possible to reduce the space taken up during the return to origin. However, this type of foldable container is very heavy. Moreover, it suffers from the drawback that the height of the container is fixed, since it necessarily corresponds to the height of the walls that is determined by the dimensions of the container base, which is not foldable.

[0009] Containers are known which consist of a big-bag type bag supported by a fixed metallic framework, which in turn is arranged on a metallic base. Due to the fact that the bag hangs from the framework, the latter must support the weight of the load contained in the bag and therefore it must be strong enough. Although these container devices are lighter than the containers and metallic cages cited above, they are still relatively heavy. At any event, as they cannot be folded, they take up a considerable volume during the return operation. Moreover, they suffer from the drawback that the parcels cannot be arranged according to the normal technique used in goods and parcel logistics, where the container (either a pallet, a metallic container or a cage) has a resistant rigid base on which the parcels are placed, so that said base directly supports the weight of said parcels.

[0010] US-2720998 discloses a container similar to the type indicated at the beginning. This known container comprises a rigid base and a container element which, although it is not made from a foldable laminar material according to the meaning indicated at the beginning, is an accordion like shrink wrap material on the rigid base. The container element is confined laterally by rigid contention partitions that can collapse onto the rigid base. This container suffers from the above-mentioned drawbacks of a heavy weight and a fixed height determined

by the dimensions of the rigid base.

[0011] GB-2189773 discloses a container for transporting liquids, which consists of a rigid base on which a canvas bag for liquids is arranged. The bag is supported by a structural assembly consisting of four vertical, telescopic bars between which there extend horizontal reinforcement bars, forming a parallelepiped container for containing the bag. In addition to supporting the bag, the purpose of these bars is to laterally contain the liquid contained in said bag, whereby they constitute resistant structural elements. Although this container has the advantage that the structural assembly and the bag can be retracted onto the rigid base, they cannot be retracted completely because of the space taken up by the bars, and it also requires a fairly cumbersome mechanical intervention. Moreover, such a structural assembly considerably increases the weight of the container and makes it more expensive to manufacture.

Disclosure of the invention

[0012] The purpose of the invention is to overcome the drawbacks of known containers. In particular, a first aim of the invention is to provide a container of the type associating a rigid base and a bag, which facilitates the good loading operation, by making it possible to work at different heights according to loading requirements, and with a volume that can adjust to the load. A second aim of the invention is that said container be lightweight and can be compacted so that it takes up as little space as possible, thereby facilitating the inverse logistics operation.

[0013] These aims are achieved by means of a container of the type indicated at the beginning, characterized in that the reversible shaping means, which shape the bag in at least one upright position with a loading mouth for introducing goods, are non-structural elements that are a part of the actual bag, so that the assembly formed by said bag and said reversible shaping means can be folded with an amorphous shape onto said rigid structure.

[0014] In the container according to the invention, said bag made from foldable laminar material may or may not have a bottom wall. In the first case, the goods rest on the rigid base through the material forming the bag, whereas in the second case they rest directly in contact with said base. At any event, it is important to note that the weight of the parcels contained in the bag is supported by the rigid base. Consequently, the container according to the invention is compatible with the existing means and techniques of loading and transporting pallets, metallic containers and cages.

[0015] The reversible shaping means that are a part of the actual bag are not structural elements, in the sense that they are lightweight and their sole function is to keep the bag in an upright position to facilitate the loading operation, but without supporting the weight of the load, which is supported by the rigid base.

[0016] In an advantageous solution, said bag is shaped with a plurality of walls that are a part of the bag and which are made from the actual foldable laminar material of the bag, with said walls being joined together by foldable edges which, on their own or together with other elements which are a part of the bag, form said reversible shaping means.

[0017] In another advantageous solution, the bag is shaped with a plurality of parts of foldable laminar material joined together in a separable manner by closing means that are a part of the actual bag, with said closing means being one of the group made of buttons, snap fasteners, zips, belts and the like, and with said closing means, on their own or together with other elements that are a part of the bag, forming said reversible shaping means. This solution has the advantage that the bag can be assembled in an upright position, progressively gaining height, as the bag is filled with goods. This makes the loading and unloading operations considerably easier.

[0018] An advantageous arrangement that makes it possible to maintain the upright position of the bag more effectively consists in said bag being shaped with at least two facing, non-concurrent surfaces and said reversible shaping means comprising at least one strip of foldable laminar material that joins said two surfaces internally to said bag and which is intended to prevent the bag from bulging too much.

[0019] In some advantageous solutions, said bag has a frustopyramidal or frustoconical shape. This way the actual shape of the bag contributes to maintaining its upright position.

[0020] Preferably, said bag has a closing lid for said loading mouth, with said closing lid being a part of the bag and being made from a foldable laminar material. With such a container, the need to use auxiliary packaging means is completely unnecessary.

[0021] Preferably, said bag also has fastening means between different parts of the actual bag, which allow it to be adjusted to the volume of the goods it contains. Typically, these means can be belts, straps or the like.

[0022] Optionally, said bag has non-foldable isolated surfaces adhered to the foldable laminar material forming the bag. These surfaces, which take up a small part of the bag surface, can be for example plastic or aluminium plates and their purpose is to help the bag stand up more easily in its upright position, without affecting the foldable character of the bag, thanks to their condition of being isolated surfaces.

[0023] In one embodiment, said bag has a lower laminar base that is a part of the bag made from the actual foldable laminar material of the bag, and said lower laminar base is closely joined to said rigid base structure. This way, the parcels contained in the bag rest on the rigid base through the foldable material of the bag, and therefore they are more protected.

[0024] In an advantageous solution, said lower laminar base of the bag is closely joined to the top face or bottom

face of said rigid base structure via attachment means, such as for example studs, screws or the like, so that it is possible to replace a deteriorated bag. In another advantageous solution, the foldable laminar material forming the bag is a plastic material, the material making up the rigid base structure is also a plastic material, and said lower laminar base of the bag is closely joined to said rigid base structure by means of thermofusion. This solution offers a particularly resistant connection between the bag and the base structure. In another advantageous solution, said lower laminar base of the bag is closely joined to said rigid base structure by means of confining it between two plates that are a part of said rigid base structure, thereby obtaining a strong connection that offers the possibility of replacing the bag when necessary.

[0025] Advantageously, said rigid base structure is shaped like a pallet, so that the container according to the invention is compatible with the usual procedures for loading and transporting palletized material.

[0026] Optionally, said rigid base structure includes wheels on its lower face, so that the base of the container can be shaped like the wheeled cages that are used for transporting parcels.

[0027] In an advantageous solution, said rigid base structure is made up of two or more parts joined together by a hinged joint, which preferably is made from the actual foldable laminar material of said lower laminar base of the bag, so that said rigid base structure is suitable for being refolded onto itself.

[0028] Also, some embodiments are added that were not explicitly explained in Spanish Patent Application ES-200501154, from which priority is claimed, but which are included within the scope of the invention.

[0029] One of these added embodiments consists in said bag having a shape that has at least two pairs of facing, non-concurrent faces and said reversible shaping means comprising at least two strips of foldable laminar material that respectively join said two faces internally to said bag, with said strips defining a compartment of said bag. This configuration provides greater stability to the bag's upright position and allows the goods placed inside it to be ordered more easily.

[0030] In another of these added embodiments, said bag has a lower part that is suitable for adopting an upright position with a certain height and at least one top part that has said reversible shaping means, which is suitable for shaping said top part of the bag into a plurality of progressive upright positions that extend said height. Preferably, said reversible shaping means of the top part of the bag are made up of closing means that are a part of the actual bag and join together, in a separable manner, a plurality of parts of foldable laminar material that make up said top part of the bag, with said closing means being one of the group made up of buttons, snap fasteners, zips, belts and the like. Through this configuration it is possible to design containers with bags of high height, with the loading operation being carried out in various successive stages whereby the height of the bag increases progressively, according to the volume of the goods to be loaded. First the upright position of the lower part of the bag is shaped, without shaping the top part, and subsequently, if necessary, the top part of the bag is shaped progressively to gain height and loading capacity. This avoids the goods falling inside the sack from a high height and getting damaged when introduced through the loading mouth.

es progressively, according to the volume of the goods to be loaded. First the upright position of the lower part of the bag is shaped, without shaping the top part, and subsequently, if necessary, the top part of the bag is shaped progressively to gain height and loading capacity. This avoids the goods falling inside the sack from a high height and getting damaged when introduced through the loading mouth.

[0031] In another of these added embodiments, the container according to the invention comprises stretching means that are closely joined to said rigid base structure and are attached to some points of the bag to pull them towards said rigid base structure. This improves the stability of the bag on the rigid base when it is loaded, particularly when the bag has a considerable height.

Brief description of the drawings

[0032] Other advantages and characteristics of the invention will be appreciated from the following description, which, in a non-limiting way, describes preferable embodiments of the invention, with reference to the accompanying drawings, in which:

Fig. 1 and Fig. 2, a basic embodiment of the container according to the invention, respectively with the bag in the upright position and with the bag in the refolded position on the base structure;

Fig. 3 and 4, two possible ways of joining together the bag and the base structure;

Fig. 5; a variant showing a foldable base structure;

Fig. 6, a variant showing a different configuration of the bag;

Fig. 7 and Fig. 8, another variant showing a different configuration of the bag, respectively in a top view and a front view;

Fig. 9, another variant showing a different configuration of the bag;

Fig. 10 and Fig. 11, an embodiment wherein the bag is made up of two parts.

Fig. 12, an embodiment that includes stretching elements.

Detailed description of some embodiments of the invention

[0033] The basic embodiment shown in Figs. 1 and 2 is a foldable container for transporting and/or storing goods, which is made up of a rigid base structure 1 shaped like a pallet and a container element 2 made up of a foldable bag 3. In this case, the bag 3 is made from a plastic material, similar to that used for the big-bag type bags and the base structure 1 is also made from plastic, but it is rigid. Bag 3 has a parallelepiped shape and a lower laminar base 18, made up of the actual material forming the bag, which is joined to the top face of base structure 1 by thermofusion, so that a rigid base 4 is formed that directly supports, through said laminar base

18, the goods contained in said bag 3.

[0034] Alternatively, a join can be provided with studs 14, as shown in Fig. 3, or bag 3 can be confined between two plates of actual base structure 1, as shown in Fig. 4; in these cases, the pallet forming base structure 1 is preferably wooden.

[0035] Returning to Fig. 1, it can be seen that the walls 7 that give bag 3 its parallelepiped shape define together some foldable edges 8 consisting of sewn hems of the actual material forming the bag and they constitute the bag's reversible shaping means, in other words means that allow the bag to be shaped in the upright position shown in Fig. 1 wherein there is defined a loading mouth 5 that opens directly. Bag 3 can be folded onto itself, as shown in Fig. 2, until it adopts a completely refolded position on rigid structure 1. Foldable edges 8 themselves can form said reversible shaping means 8 of bag. Optionally, to reinforce said reversible shaping means, a strip 9 could be provided that internally joins two facing faces of the bag, preferably the larger faces, to prevent the bag from bulging excessively. In the example shown in Fig. 1, strip 9 is made from the actual material forming the bag and it is attached to non-foldable surfaces 19 that are sheets of plastic adhered to walls 7 of the bag.

[0036] Fig. 5 shows a variant of the rigid base structure which, in this case, is made up of two parts 1A, 1B joined together by a hinged join 16. In this particular example, hinged join 16 is made from the actual foldable laminar material of the lower laminar base 18 of the bag. Thanks to this arrangement, the rigid base structure can be refolded onto itself as indicated by the arrows in Fig. 5, so that the container can be folded and finally take up a very reduced space corresponding to practically half said rigid base structure.

[0037] Fig. 6 shows an embodiment wherein bag 3 has two loading mouths 5, one top one and another side one. In this case, bag 3 is made up of a plurality of parts 17 joined together by zips 10 that constitute said reversible shaping means, because the upright position of bag 3 is formed by closing said zips 10. The refolded position of the bag (not shown) is achieved by opening zips 10, so that parts 17 are free and can be refolded onto rigid base structure 1. Also, the bag is provided with closing lids 13 for said mouths 5, made from the actual material forming the bag.

[0038] Figs. 7 and 8 illustrate another variant wherein bag 3 has a frustoconical shape and a framework 12 that permanently defines the perimeter of the loading mouth. Bag 3 also has a closing lid 13 with side laps and belts 6 that form fastening means that allow the final dimension of the bag to be adjusted to the volume of the goods the bag contains. An intermediate framework 20 has also been provided, which helps to maintain the bag's upright position.

[0039] Fig. 9 illustrates a variant wherein bag 3 is made up of a plurality of parts 17 joined together by snap fasteners 10 constituting said reversible shaping means, because the upright position of bag 3 is formed by closing

said snap fasteners 10. Fig. 9 shows the refolded shape of the bag, which is achieved by undoing snap fasteners 10 so that parts 17 are free and can be refolded onto rigid base structure 1.

[0040] Figs. 10 and 11 illustrate an embodiment wherein rigid base structure 1 is a metallic platform that includes wheels 15 on its lower face, and bag 3 has a bottom part 21 and a top part 22. Lower part 21 has a parallelepiped shape and is joined by its bottom edges to the perimeter of rigid base 4. In this embodiment, bag 3 has no bottom wall, so that the goods contained therein rest directly in contact with said rigid base 4. The facing, non-concurrent faces of bottom part 21 of the bag are mutually held by respective strips 9a, 9b of foldable laminar material, which provide consistency to the upright position of said bottom part 21 and which, in turn, divide it into compartments. Top part 22 has a frustoconical shape and it is made up of two parts 23 that are joined by zips 10. Fig. 10 shows the container with bag 3 in an upright position at maximum height, whereas in Fig. 11 bag 3 can be seen with a first height corresponding to the upright position of bottom part 21 only. Although it has not been shown, it is understood that bag 3 can be folded completely onto rigid base 4, with each part adopting an amorphous folded position similar to those shown in Figs. 2 and 9.

[0041] Finally, Fig. 12 illustrates an embodiment wherein rigid base structure 1 has stretching means 24 to pull bag 3 towards it and consolidate the stability of the bag once it is loaded. In this case the stretching means are bands 24 of an adjustable length that are attached at one end to the corners of rigid base structure 1 with the other end linked to and passing through a handle 25 provided on bag 3. Advantageously, several handles 25 can be provided in different positions of the bag.

[0042] A person skilled in the art will understand that the embodiments of the invention described above are only non-limiting examples, and that numerous variants thereof can be envisaged without thus departing from the context of this invention. In particular, containers according to the invention can be envisaged, resulting from the combination of characteristics that are presented separately in the embodiments described. For example, and without excluding other combinations, the invention includes the embodiment of a container like the one in Fig. 1, but wherein there is no loading mouth 5 in the top face of bag 3, which can then be a closed face, otherwise loading mouth 5 is provided on a side face of the bag like the one shown in Fig. 6.

Claims

1. Foldable container for transporting and/or storing goods, comprising:

- a container element (2) which contains said goods made up of at least one foldable bag (3)

made from a foldable laminar material;

- a rigid structure (1) with which the bottom end of said bag (3) is closely joined, so that said rigid base structure (1) defines, directly or through the laminar material being embedded forming said bag (3), a rigid base (4) intended to directly support the goods contained in said bag (3); and
- reversible shaping means (8, 9, 10) of said bag (3) suitable for shaping said bag (3) in at least one upright position wherein said bag (3) has at least one loading mouth (5) that opens directly for introducing goods;

characterized in that said reversible shaping means (8, 9, 10) are non-structural elements that are a part of the actual bag (3), so that the assembly formed by said bag (3) and said reversible shaping means (8, 9, 10) can be folded with an amorphous shape onto said rigid structure (1).

2. Container according to claim 1, **characterized in that** said bag (3) is shaped with a plurality of walls (7) that are a part of bag (3) and are made from the actual laminar material of bag (3), with said walls (7) being joined together by foldable edges (8) that form, on their own or together with other elements that are a part of bag (3), said reversible shaping means.

3. Container according to claims 1 or 2, **characterized in that** the shape of said bag (3) has a plurality of parts (17) made from foldable laminar material joined together in a separable manner by closing means (10) that are a part of actual bag (3), with said closing means (10) being one of the group made up of buttons, snap fasteners, zips, belts and the like, and with said closing means (10) forming, on their own or together with other elements that are a part of bag (3), said reversible shaping means.

4. Container according to any of the claims 1 to 3, **characterized in that** said bag (3) is shaped to comprise at least two facing, non-concurrent faces and said reversible shaping means comprise at least one strip (9) of foldable laminar material that joins said two faces internally to said bag (3).

5. Container according to claim 1, **characterized in that** said bag (3) has a frustopyramidal or frustoconical shape.

6. Container according to any of the preceding claims 1 to 5, **characterized in that** said bag (3) has a closing lid (13) for said loading mouth (5), with said closing lid (13) being a part of bag (3) and being made from a foldable laminar material.

7. Container according to any of the claims 1 to 6, **characterized in that** said bag (3) has fastening

means (6) between different parts of the actual bag (3) that make it possible to adjust the size thereof to the volume of the goods it contains.

8. Container according to any of the claims 1 to 7, **characterized in that** said bag (3) has non-foldable isolated surfaces (19) adhered to the foldable laminar material forming said bag (3).

9. Container according to any of the claims 1 to 8, **characterized in that** said bag (3) has a lower laminar base (18) that is a part of bag (3), made from the actual foldable laminar material of bag (3), and said lower laminar base (18) is closely joined to said rigid base structure (1).

10. Container according to claim 9, **characterized in that** said lower laminar base (18) of bag (3) is closely joined to one of the top or bottom faces of said rigid base structure (1) through linking means (14).

11. Container according to claim 10, **characterized in that** the foldable laminar material forming said bag (3) is a plastic material and the material forming said rigid base structure (1) is also a plastic material, and **in that** said lower laminar base (18) of bag (3) is closely joined to said rigid base structure (1) through thermofusion.

12. Container according to claim 9, **characterized in that** said lower laminar base (18) of bag (3) is closely joined to said rigid base structure (1) by being confined between two plates which are a part of said rigid base structure (1).

13. Container according to any of the claims 1 to 12, **characterized in that** said rigid base structure (1) is shaped like a pallet.

14. Container according to any of the claims 1 to 12, **characterized in that** said rigid base structure (1) has wheels (15) on the bottom face thereof.

15. Container according to any of the claims 1 to 14, **characterized in that** said rigid base structure (1) is made up of two or more parts (1A, 1 B) joined together by a hinged join (16), so that said rigid base structure (1) is suitable for being refolded onto itself.

16. Container according to claim 15, **characterized in that** said hinged join (16) is made up of the actual foldable laminar material of said lower laminar base (18) of bag (3).

17. Container according to any of the claims 1 to 16, **characterized in that** said bag (3) is shaped with at least two pairs of facing, non-concurrent faces and

said reversible shaping means have at least two strips (9a, 9b) of foldable laminar material that respectively join said two faces internally to said bag (3), with said strips (9a, 9b) defining compartments of said bag (3).

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18. Container according to any of the claims 1 to 17, **characterized in that** said bag (3) has a lower part (21) suitable for adopting an upright position of a certain height and at least one top part (22) that has said reversible shaping means (10), which are suitable for shaping said top part (22) of the bag into a plurality of progressive upright positions that extend said height.

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19. Container according to claim 18, **characterized in that** said reversible shaping means of the top part (22) of the bag consist of closing means (10) that are a part of the actual bag (3) and that join together in a separable manner a plurality of parts (23) of foldable laminar material that make up said top part (22) of the bag, with said closing means (10) being from the group made up of buttons, snap fasteners, zips, belts and the like.

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20. Container according to any of the claims 1 to 19, **characterized in that** it has stretching means (24) that are closely joined to said rigid base structure (1) and are attached to points on said bag (3) in order to pull them towards rigid base structure (1).

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FIG. 1

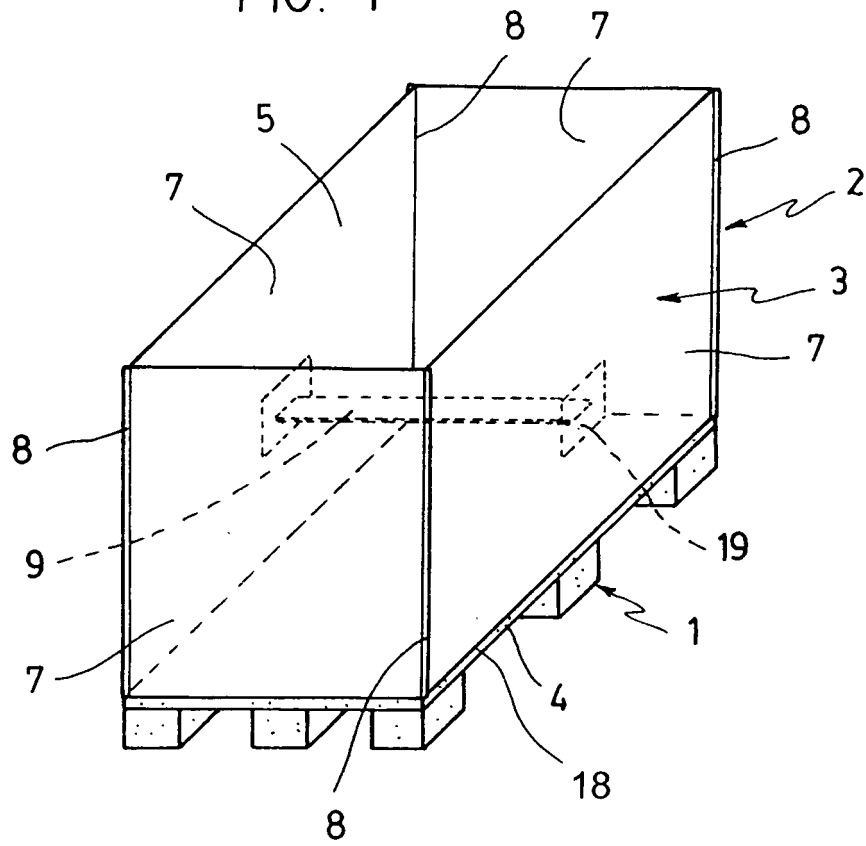


FIG. 2

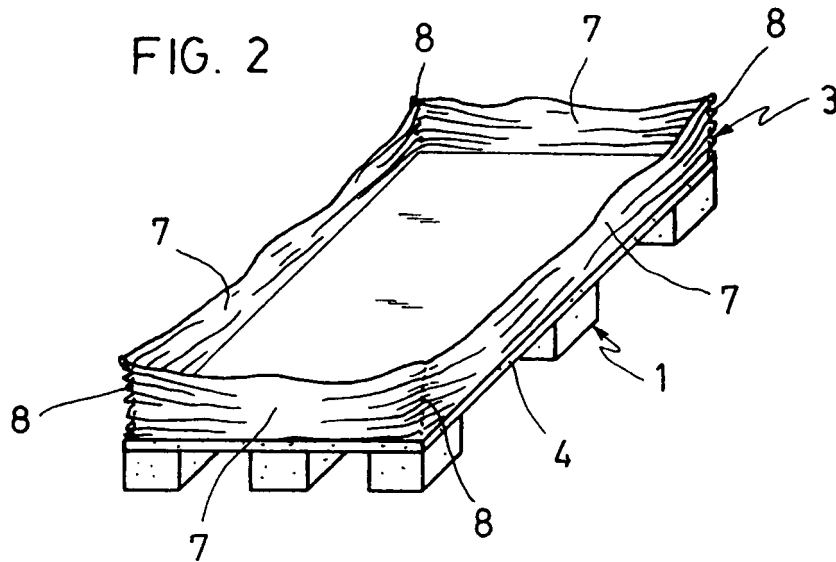


FIG. 3

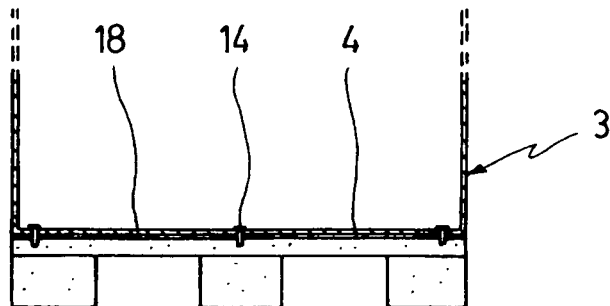


FIG. 4

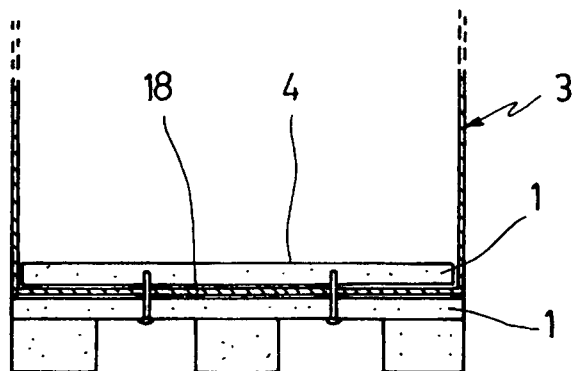
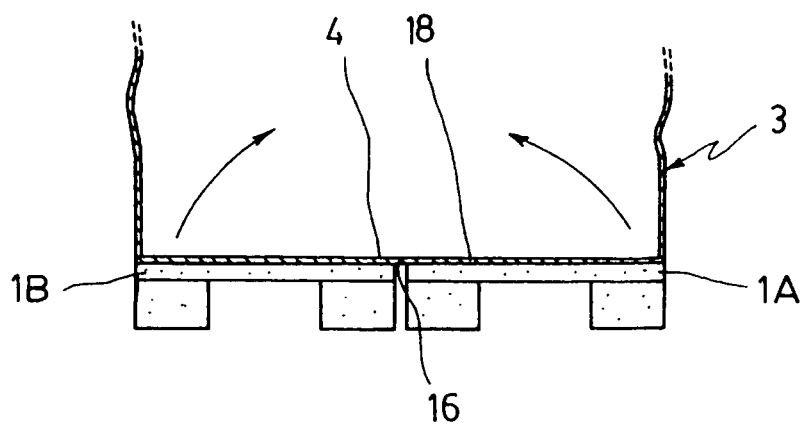


FIG. 5



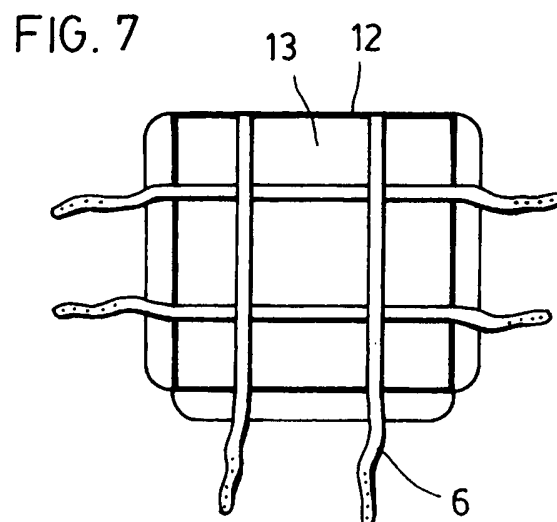
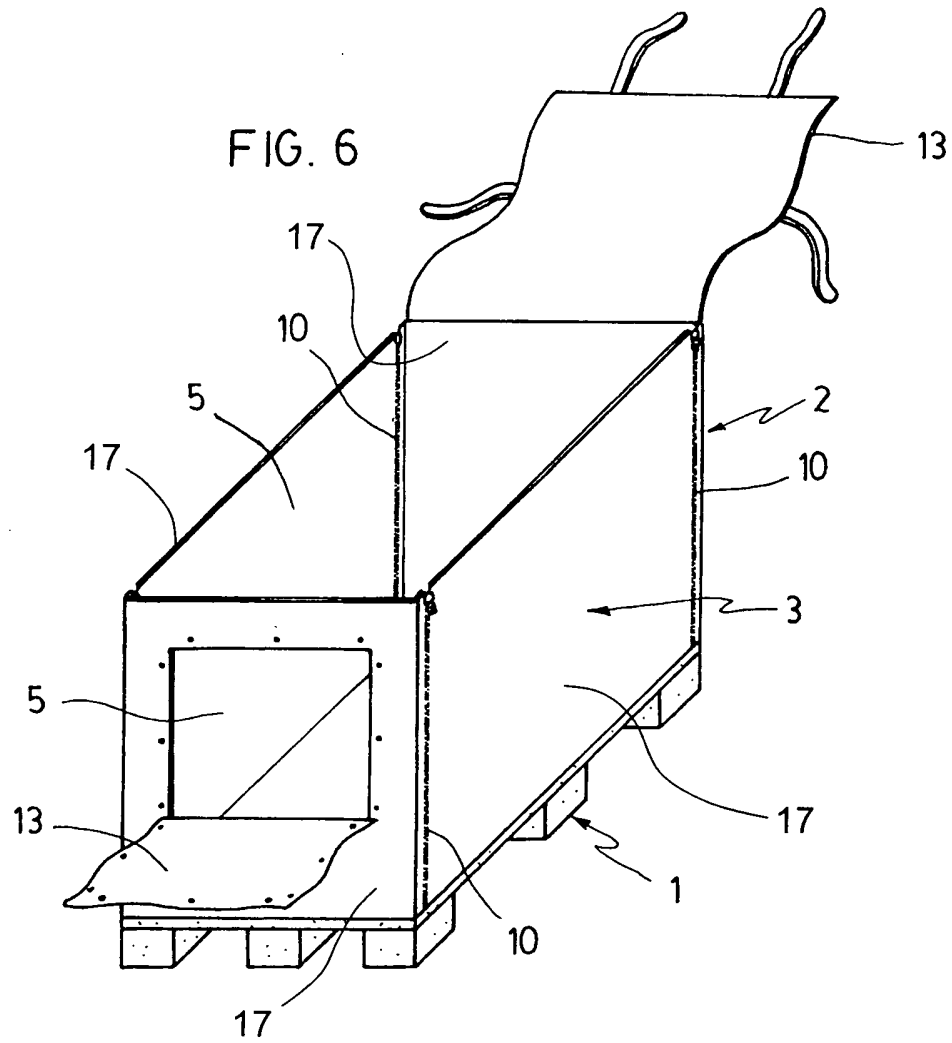


FIG. 8

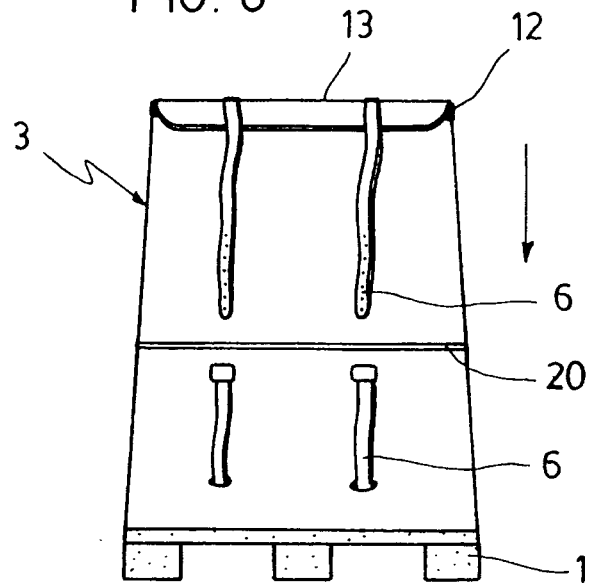
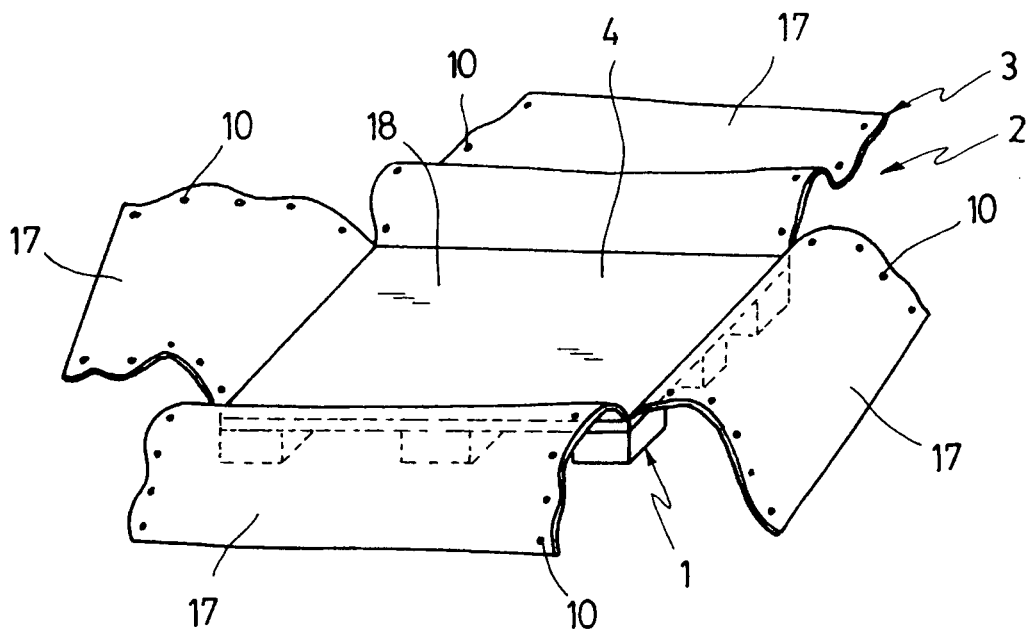
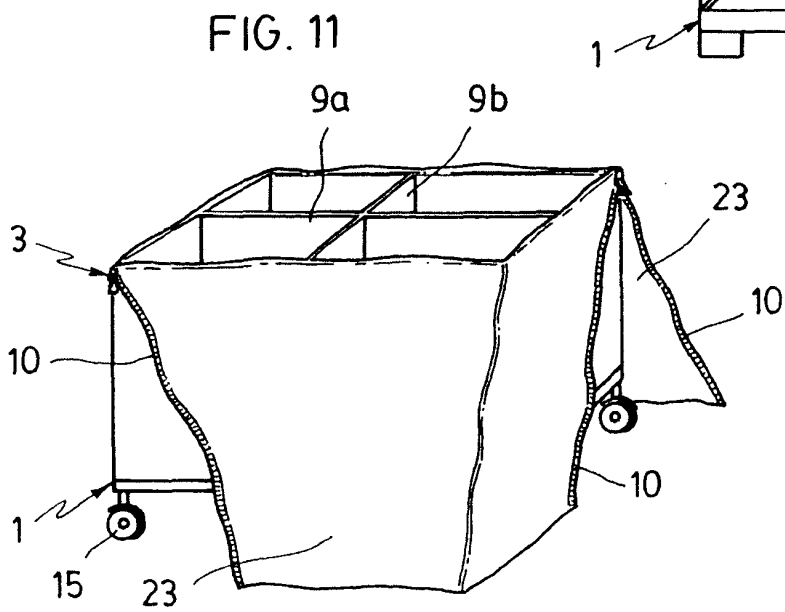
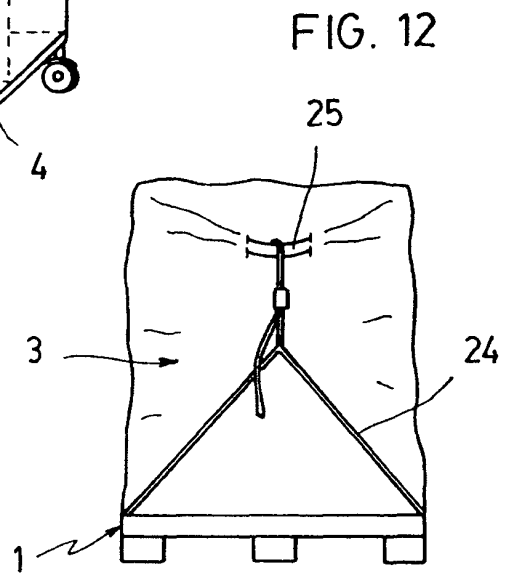
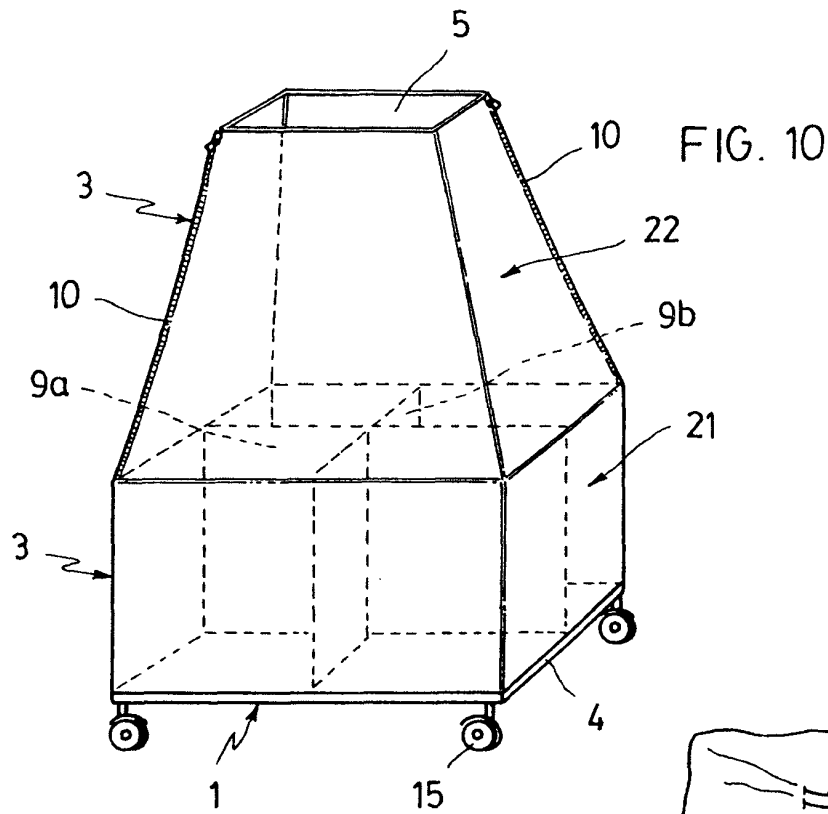


FIG. 9





INTERNATIONAL SEARCH REPORT

International application No.

PCT/ ES 2006/000234

A. CLASSIFICATION OF SUBJECT MATTER

see extra sheet

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

B65D88/18,B65D88/20

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

CIBEPAT,EPODOC,WPI

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X A	GB 2189773 A (Farrell) 04.11.1987, the whole document.	1,2 3-20
Y A	US 2720998 A (Clifford) 18.10.1955, the whole document.	1,2 3-20
Y A	US 6533121 A (Ross) 18.03.2003, the whole document.	1,2
A	US 5664887 A (Lafleur) 09.09.1997, column 6, line 15 - column 22, line 18; images.	1-20
A	WO 0029310 A1 (Storsack Tradco Ltd.) 15.05.2000, the whole document.	1,2

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:	"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
"A" document defining the general state of the art which is not considered to be of particular relevance.		
"E" earlier document but published on or after the international filing date		
"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)	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"O" document referring to an oral disclosure use, exhibition, or other means	"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 documents, such combination being obvious to a person skilled in the art
"P" document published prior to the international filing date but later than the priority date claimed	"&"	document member of the same patent family

Date of the actual completion of the international search

07 Aout 2006 (07.08.2006)

Date of mailing of the international search report

(10-08-2006)

Name and mailing address of the ISA/
O.E.P.M.Paseo de la Castellana, 75 28071 Madrid, España.
Facsimile No. 34 91 3495304

Authorized officer

V. Anguiano Mañero

Telephone No. + 34 91 349

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EP 1 880 957 A1

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/ ES 2006/000234

Patent document cited in the search report	Publication date	Patent family member(s)	Publication date
GB 2189773 A	04.11.1987	HK 43891 A CY 1594 A CA 1331448 C	14.06.1991 03.04.1992 16.08.1994
US2720998A A	18.10.1955	NONE	-----
US6533121B B	18.03.2003	NONE	-----
US 5664887 A	09.09.1997	CA 2106550 A US 5328268 A US 5421804 A CA 2140417 A	01.05.1994 12.07.1994 06.06.1995 02.12.1995 02.12.1995 02.12.1995
WO 0029310 A	25.05.2000	AU 1071600 A IE 980947 A IE 990734 A	05.06.2000 01.11.2000 07.03.2001

Form PCT/ISA/210 (patent family annex) (April 2005)

INTERNATIONAL SEARCH REPORT

International application No.

PCT/ES 2006/000234

CLASSIFICATION OF SUBJECT MATTER

B65D 88/18 (2006.01)

B65D 88/20 (2006.01)

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- US 2720998 A [0010]
- GB 2189773 A [0011]
- ES 200501154 [0028]