(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 2 060 510 A1

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
20.05.2009 Bulletin 2009/21

(51) Int Cl.:
B65D 88/12 *(2006.01)* ***B65D 88/02*** *(2006.01)*

(21) Application number: **08020022.3**

(22) Date of filing: **17.11.2008**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MT NL NO PL PT RO SE SI SK TR
Designated Extension States:
AL BA MK RS

(30) Priority: **19.11.2007 CN 200710187605**

(71) Applicants:
- **China International Marine Containers (Group) Ltd.**
  Shekou Industrial Zone
  Shenzhen, Guangdong, 518067 (CN)
- **Qingdao CIMC Special Reefer Co., Ltd.**
  Economic & Development Zone of Jiaozhou
  Qingdao 266300 (CN)

(72) Inventors:
- **Huang, T.H.**
  Qingdao 266300 (CN)
- **Wang, Junhai**
  Qingdao 266300 (CN)
- **Huang, Guohao**
  Qingdao 266300 (CN)
- **Sun, Jianshun**
  Qingdao 266300 (CN)

(74) Representative: **Fiesser, Gerold Michael et al**
KNH Patentanwälte
Kahlhöfer Neumann Herzog Fiesser
Isartorplatz 8
80331 München (DE)

(54) Container

(57) The present invention discloses a container comprising a base frame (1), bottom side rails (11) are provided respectively at both sides of the base frame and extends along a lengthwise direction of the container, and corner fittings (12) are provided respectively at positions close to both ends of the each bottom side rail (11), the each bottom side rail is provided with a twist lock receiving groove (13) which is formed by notching upward vertically from a bottom of the each bottom side rail, a bottom side of which is open, and a position of which corresponds to a position of a twist lock provided on a container carrier and disposed below the each bottom side rail. In the container of the present invention, it will be effective to prevent impact or press on the bottom side rails from twist locks provided on the container carrier, and the service life of the container is increased.

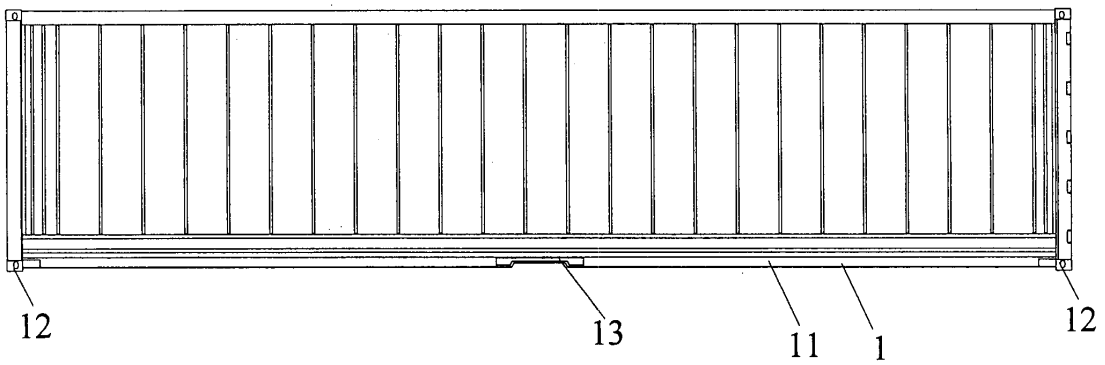

FIG. 2

EP 2 060 510 A1

Description

Field of the Invention

[0001] The present invention relates to a container, and more particularly, to a structure of a bottom side rail thereof.

Background of the Invention

[0002] As shown in the FIG. 1, a container as prior art comprises a base frame 1', bottom side rails 11' are provided respectively at both sides of the base frame 1' and extends along a lengthwise direction of the container, and corner fittings 12' for stacking and/or lifting the container are provided respectively at positions close to both ends of the each bottom side rail 11'. Generally, when the container is transported by a container carrier, the corner fittings 12' are engaged respectively with twist locks (not shown) provided on the container carrier, thereby a container body of the container is fixed on the container carrier.

[0003] In order to meet demand of transporting different kinds of containers by the same container carrier, twist locks are located at different positions on the container carrier which corresponds to different type containers. For example, twist locks are provided on the container carrier at a 20 feet position corresponding to a 20 feet container, a 40 feet position corresponding to a 40 feet container, or a 45 feet position corresponding to a 45 feet container, respectively. In such way, it is easier to fix the container on the container carrier. However, because the twist locks are protrusively provided on a carrying surface of the container carrier, when a container is fixed on the container carrier, some twist locks, which do not work for fixing the container, would exert upward impact or press on the bottom side rails of the container, which would yield damage or deformation of the bottom side rails, the service life of the container is reduced and the maintenance cost is increased.

Summary of the Invention

[0004] An object of the present invention is to provide a container that damage or deformation of bottom side rails resulted from impact or press on the bottom side rails from twist locks provided on a container carrier can be prevented when the container is fixed on a container carrier.

[0005] To achieve said the above object of the present invention, according to an aspect of the present invention, there is provided a container comprising a base frame, bottom side rails are provided respectively at both sides of the base frame and extends along a lengthwise direction of the container, and corner fittings for stacking and/or lifting the container are provided respectively at positions close to both ends of the each bottom side rail of the bottom side rails, the each bottom side rail is provided with a twist lock receiving groove which is formed by notching upward vertically from a bottom of the each bottom side rail, a bottom side of which is open, and a position of which corresponds to a position of a twist lock provided on a container carrier for transporting the container and disposed below the each bottom side rail.

[0006] In the container invention, preferably, a length of a container body of the container is 40 feet, and the each twist lock receiving groove is located at a position at a distance of 20 feet from one end of the container.

[0007] In the container invention, preferably, a reinforcing rib plate is provided along a peripheral wall of the each twist lock receiving groove, a sealing plate for fixing the reinforcing rib plate is connected between the reinforcing rib plate and a top section of the each bottom side rail, and extends along a direction perpendicular to a lengthwise direction of the each bottom side rail.

[0008] In the container invention, preferably, two widening portions are formed by extending the reinforcing rib plate respectively towards both sides of the each bottom side rail, one widening portion of said two widening portions of the reinforcing rib plate located inside the each bottom side rail is connected to a bottom plate located at a bottom of the container, and a periphery surface of the other widening portion of said two widening portions of the reinforcing rib plate located outside the each bottom side rail is connected to a reinforcement plate.

[0009] In the container invention, preferably, a flat plate for reinforcing a strength of the each bottom side rail is fixed at a position close to the open bottom side of the each twist lock receiving groove, the flat plate is provided with a through slot extending along a lengthwise direction of the each bottom side rail, an opening of the through slot faces downwards and a width of the through slot corresponds to a size of said twist lock provided on the container carrier for transporting the container and disposed below the each bottom side rail.

[0010] In the container invention, preferably, a width of the twist lock receiving groove is greater than 80 mm, a length of the twist lock receiving groove is less than or equal to 1500 mm, and a vertical highness from a top of the twist lock receiving groove to a bottom surface of a respective corner fitting of the corner fittings located at a bottom of the container is greater than 50 mm.

[0011] In the container invention, preferably, the length of the twist lock receiving groove is 640 mm, and the vertical highness from the top of the twist lock receiving groove to the bottom surface of the respective corner fitting of the corner fittings located at the bottom of the container is 86 mm.

[0012] Compared with a container as the prior art, the present invention has the following advantages: (a) since the each bottom side rail is provided with a twist lock receiving groove which is formed by notching upward vertically from a bottom of the each bottom side rail, a bottom side of which is open, and a position of which corresponds to a position of a twist lock provided on a container carrier for transporting the container and dis-

posed below the each bottom side rail, when the container of the present invention is fixed on the container carrier, due to the appliance of the twist lock receiving grooves, it will be effective to prevent impact or press on the bottom side rails from the twist locks provided on the container carrier, and thus protect the bottom side rails, the service life of the container is increased and the maintenance cost is reduced. (b) Since a reinforcing rib plate is provided along a peripheral wall of the each twist lock receiving groove and a sealing plate for fixing the reinforcing rib plate is connected between the reinforcing rib plate and a top section of the each bottom side rail, and extends along a direction perpendicular to a lengthwise direction of the each bottom side rail, the each bottom side rail has advantages of great strength and long service life.

Brief Description of the Drawings

[0013] The accompanying drawings, which are included to provide a further understanding of the invention and are incorporated in and constitute a unit of this application document, illustrate embodiments of the invention and together with the description serve to explain the principles of the invention. In the drawings:

FIG.1 is a side view of a container as prior art;

FIG.2 is a side view of a structure of a container of the present invention;

FIG.3 is a sketch map of a structure of a twist lock receiving groove formed in a bottom side rail in the present invention;

FIG.4 is a right side view of FIG.3;

FIG.5 is a sketch map of a perspective structure of a bottom side rail in the present invention; and

FIG.6 is a sketch map of a perspective structure of a bottom side rail in another form in the present invention.

Detailed Description of a Preferential Embodiment

[0014] As shown in FIG. 2, a container of the present invention comprises a base frame 1, bottom side rails 11 are provided respectively at both sides of the base frame 1 and extends along a lengthwise direction of the container, and corner fittings 12 for stacking and/or lifting the container are provided respectively at positions close to both ends of the each bottom side rail 11.

[0015] When the container is transported by a container carrier (not shown), the container is loaded on a carrying surface of the container carrier, and fixed on the container carrier by means of an engagement between twist locks (not shown) provided on the carrying surface of the container carrier and the corner fittings 12 provided on the container, thereby the safe transportation of the container is achieved.

[0016] Further more, in the container of the present invention, the each bottom side rail 11 of the bottom side rails, which are respectively located in both sides of the container, is provided with a twist lock receiving groove 13. The twist lock receiving groove 13 is formed by notching upward vertically from a bottom of the each bottom side rail 11, a bottom side of the twist lock receiving groove 13 is open, and a position of the twist lock receiving groove 13 corresponds to a position of a twist lock (not shown) provided on a container carrier for transporting the container and disposed below a body of the each bottom side rail 11.

[0017] When the container of the present invention is loaded on the container carrier, due to the appliance of the twist lock receiving grooves 13, it will be effective to prevent impact or press on the bottom side rails 11 from the twist locks provided on the container carrier, and thus protect the bottom side rails 11.

[0018] Preferably, the container of the present invention with the above structure has a container body of 40 feet in length, and the each twist lock receiving groove 13 is located at a position at a distance of 20 feet from one end of the container. In such way, due to the arrangement of the twist lock receiving grooves 13, it will be effective to prevent impact and press on the bottom side rails 11 from the twist locks provided at the above positions of the container carrier.

[0019] In the container invention, preferably, a width (along a direction perpendicular to the paper plane of FIG.2) of the each twist lock receiving groove 13 is greater than 80 mm, a length (indicated as a character, d, in FIG.3) of the each twist lock receiving groove 13 is not greater than 1500 mm, and a vertical highness (indicated as a character, h, in FIG. 4) from a top of the each twist lock receiving groove 13 to a bottom surface of a respective corner fitting 12 located at a bottom of the container is greater than 50 mm. Preferably, the length of the each twist lock receiving groove is 640 mm, and the vertical highness from the top of the twist lock receiving groove 13 to the bottom surface of the respective corner fitting 12 located at the bottom of the container is 86 mm.

[0020] As shown in FIG.3, FIG.4 and FIG.5, in order to maintain a whole strength of the each bottom side rail 11 in which a twist lock receiving grooves 13 has been formed, a reinforcing rib plate 131 is provided along a peripheral wall of the each twist lock receiving groove 13, a sealing plate 132 is connected between the reinforcing rib plate 131 and a top section 111 of the each bottom side rail 11, and the sealing plate 132 extends along a direction perpendicular to a lengthwise direction of the each bottom side rail 11.

[0021] Preferably, a bottom plate 14 of the container is a corrugation plate, and a top section 14 of the each twist lock receiving groove 13 is located on a position close to the bottom plate 14 of the container. Two widening portions 1331 and 1332 are formed by extending

the reinforcing rib plate 131 respectively towards both sides of the each bottom side rail 11, one widening portion 1331 of the reinforcing rib plate 131 located inside the each bottom side rail 11 is connected to the bottom plate 14 located at a bottom of the container, and a periphery surface of the other widening portion 1332 of the reinforcing rib plate 131 located outside the each bottom side rail 11 is connected to a reinforcement plate 17. In such way, the bottom plate 14, the reinforcing rib plate 131, the sealing plate 132 and the each bottom side rail 11 could be welded together, thereby the strength of the portion of the bottom side rail 11 where the twist lock receiving groove 13 is formed can be improved.

[0022] Obviously, a width of the reinforcing rib plate 131 may be less than or equal to a width of the each bottom side rail 11, and the bottom plate 14 of the container may be made by a bottom plate using any other materials, which may also play the same role on reinforcing the strength of the each bottom side rail 11.

[0023] As shown in the FIG.6, in order to further reinforce a strength of the portion of the each bottom side rail 11 in vicinity of the each twist lock receiving groove 13, a flat plate 15 is fixed at a position close to the bottom side, which is open, of the each twist lock receiving groove 13, the flat plate 15 is provided with a through slot 16 extending along a lengthwise direction of the each bottom side rail 11, an opening of the through slot 16 faces downwards and a width of the through slot 16 corresponds to a size of the respective twist lock provided on the container carrier for transporting the container and disposed below the body of the each bottom side rail 11. In such way, when the body of container is fixed on a container carrier, it is effective to prevent the impact and press on the each bottom side rail 11 from the twist lock (s) by means of the twist lock receiving groove(s) 13.

Claims

1. A container comprising a base frame, in which bottom side rails are provided respectively at both sides of the base frame and extends along a lengthwise direction of the container, and corner fittings for stacking and/or lifting the container are provided respectively at positions close to both ends of each bottom side rail of said bottom side rails, **characterized in that** said each bottom side rail is provided with a twist lock receiving groove which is formed by notching upward vertically from a bottom of said each bottom side rail, a bottom side of which is open, and a position of which corresponds to a position of a twist lock provided on a container carrier for transporting the container and disposed below said each bottom side rail.

2. The container according to Claim 1, **characterized in that** a length of a container body of the container is 40 feet, and said each twist lock receiving groove is located at a position at a distance of 20 feet from one end of the container.

3. The container according to Claim 1 or 2, **characterized in that** a reinforcing rib plate is provided along a peripheral wall of said each twist lock receiving groove, a sealing plate for fixing the reinforcing rib plate is connected between the reinforcing rib plate and a top section of said each bottom side rail, and extends along a direction perpendicular to a lengthwise direction of said each bottom side rail.

4. The container according to Claim 3, **characterized in that** two widening portions are formed by extending the reinforcing rib plate respectively towards both sides of said each bottom side rail, one widening portion of said two widening portions of the reinforcing rib plate located inside said each bottom side rail is connected to a bottom plate located at a bottom of the container, and a periphery surface of the other widening portion of said two widening portions of the reinforcing rib plate located outside said each bottom side rail is connected to a reinforcement plate.

5. The container according to Claim 1, **characterized in that** a flat plate for reinforcing a strength of said each bottom side rail is fixed at a position close to the open bottom side of said each twist lock receiving groove, the flat plate is provided with a through slot extending along a lengthwise direction of said each bottom side rail, an opening of the through slot faces downwards and a width of the through slot corresponds to a size of said twist lock provided on the container carrier for transporting the container and disposed below said each bottom side rail.

6. The container according to Claim 1, **characterized in that** a width of said twist lock receiving groove is greater than 80 mm, a length of said twist lock receiving groove is less than or equal to 1500 mm, and a vertical highness from a top of said twist lock receiving groove to a bottom surface of a respective corner fitting of said corner fittings located at a bottom of the container is greater than 50 mm.

7. The container according to Claim 6, **characterized in that** the length of said twist lock receiving groove is 640 mm, and the vertical highness from the top of said twist lock receiving groove to the bottom surface of the respective corner fitting of said corner fittings located at the bottom of the container is 86 mm.

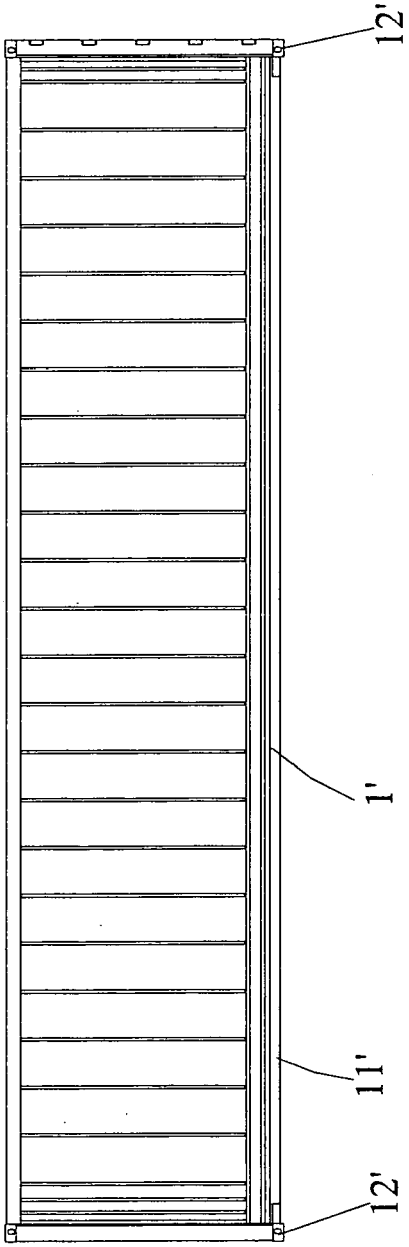

FIG. 1

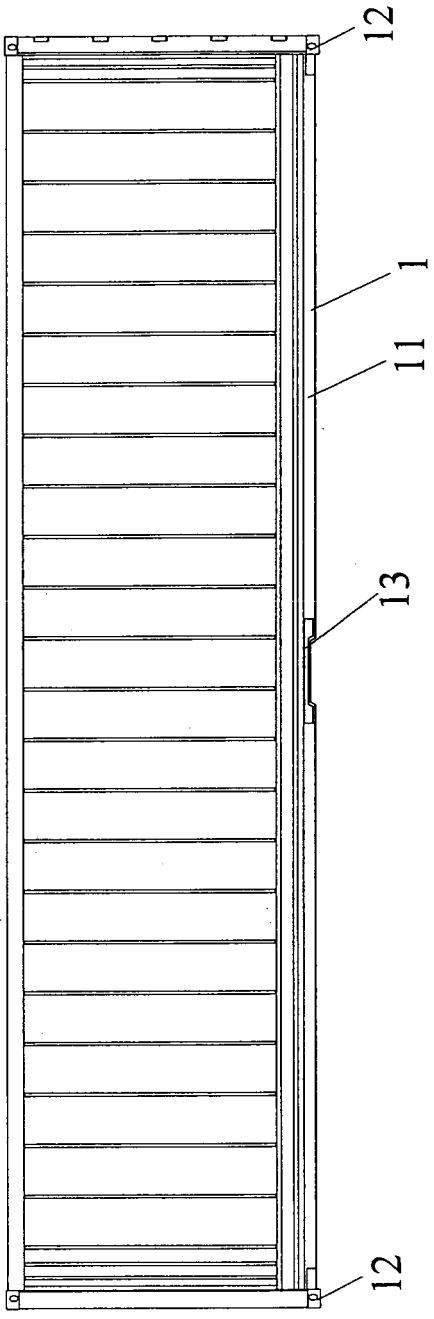

FIG. 2

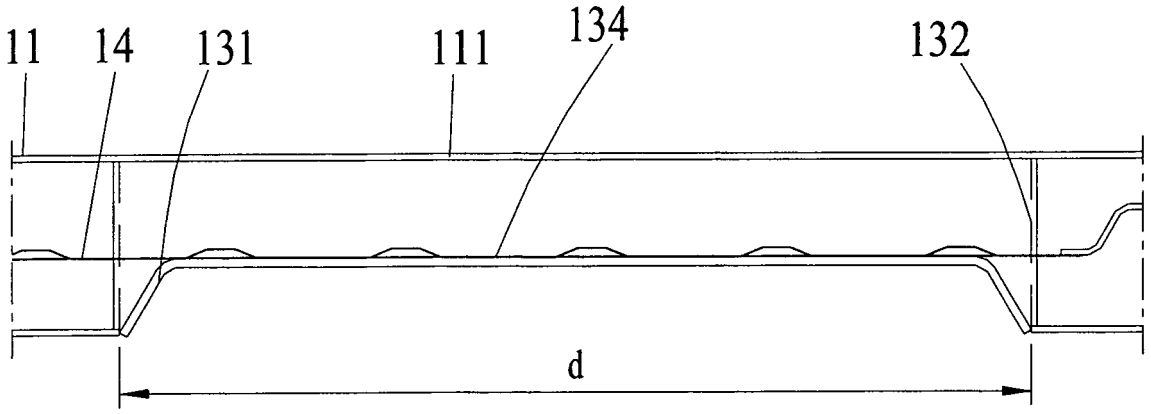

FIG. 3

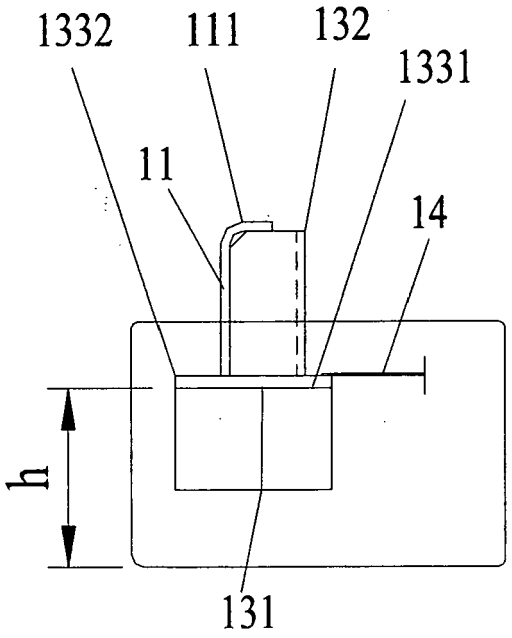

FIG. 4

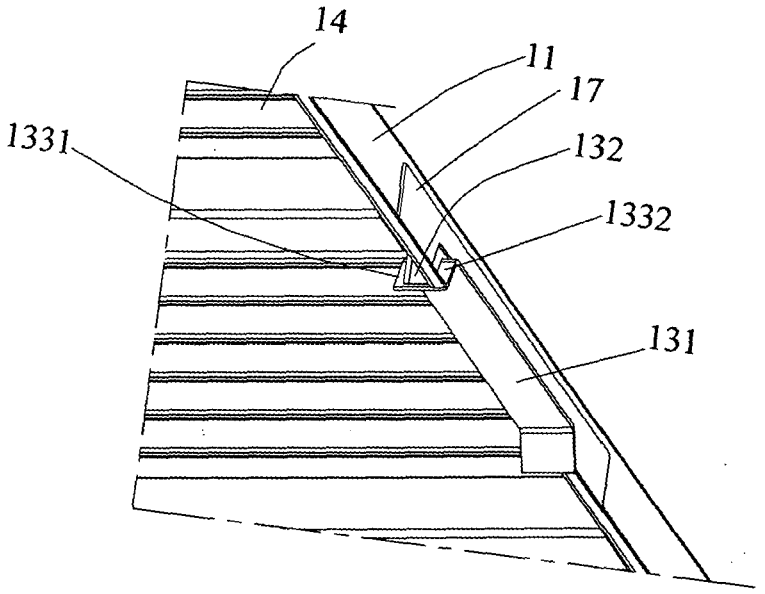

FIG. 5

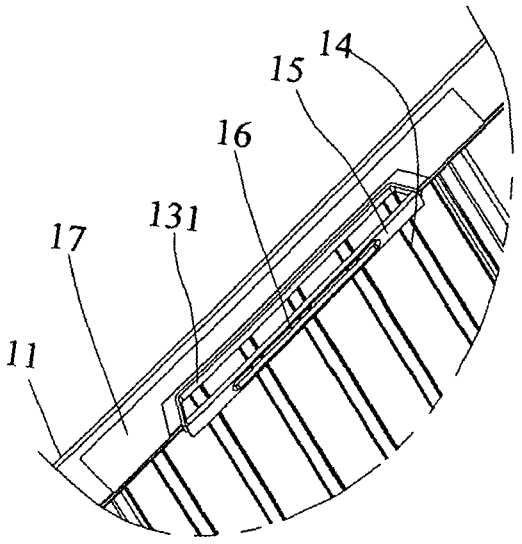

FIG.6

Europäisches Patentamt
European Patent Office
Office européen des brevets

EUROPEAN SEARCH REPORT

Application Number
EP 08 02 0022

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	DE 297 21 301 U1 (ALBERTH GUENTER [DE]) 12 February 1998 (1998-02-12) * figure 1 * -----	1	INV. B65D88/12 B65D88/02
X	GB 2 393 435 A (CLIVE-SMITH MARTIN [GB]) 31 March 2004 (2004-03-31) * figure 1 * -----	1,5	
A	CN 1 442 354 A (YAN HUICHUN [CN]) 17 September 2003 (2003-09-17) * the whole document * -----	1	
A	US 6 338 513 B1 (WILLIAMS DEWAYNE B [US]) 15 January 2002 (2002-01-15) * figures * -----	1	
			TECHNICAL FIELDS SEARCHED (IPC) B65D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	27 February 2009	Zanghi, Amedeo

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

3

EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 08 02 0022

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

27-02-2009

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 29721301 U1	12-02-1998	NONE	
GB 2393435 A	31-03-2004	NONE	
CN 1442354 A	17-09-2003	NONE	
US 6338513 B1	15-01-2002	NONE	

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82