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(54) Create for bottle carriers

(57) A bottle crate (1) comprises a base (2), side walls (3, 4) and dividing elements such as partitions (5, 6) and pillars (7) which define bottle positions (8) for receiving bottles. The bottle positions are arranged in rows and have mutual spacings (S1, S2, S3), the second (S2) and the third spacing (S3) in a row being greater than the first spacing (S1). This allows both six-packs and four-packs to be used. To provide a greater strength, the pillars (7) are each connected to a partition (6).

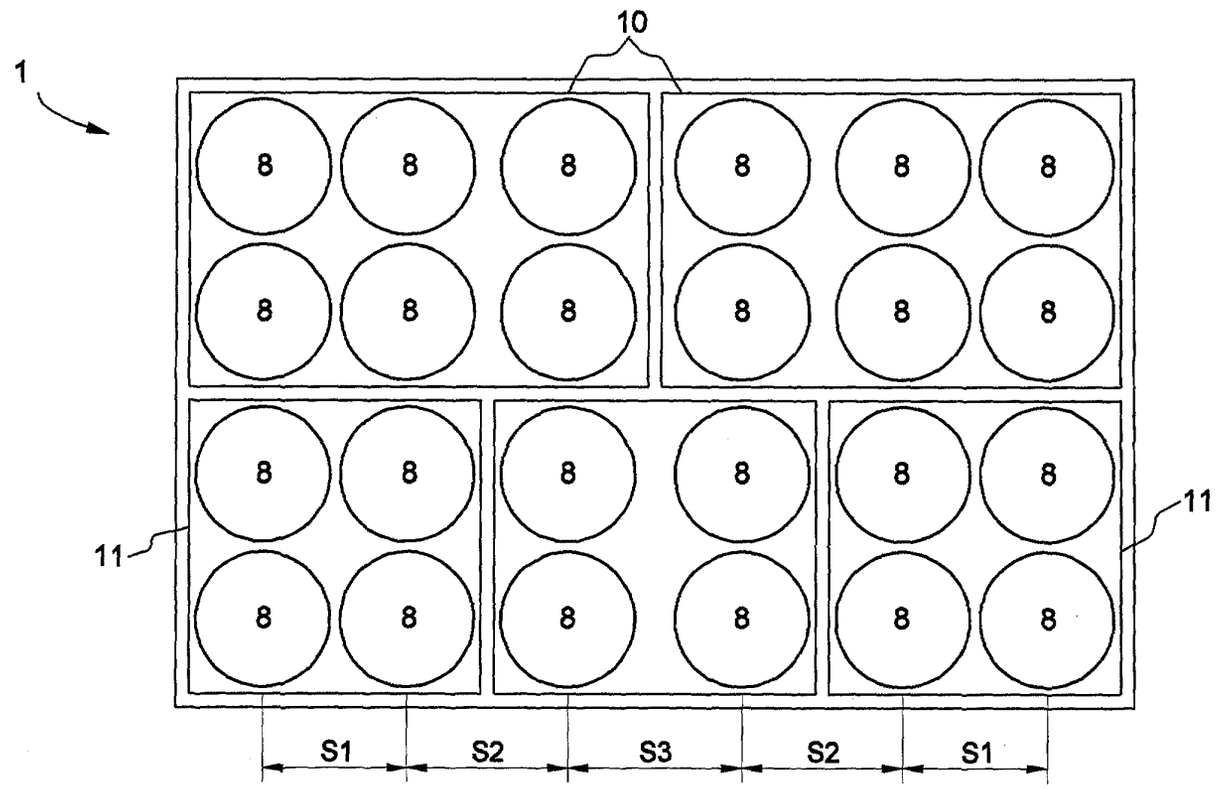

Fig. 3

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Description

[0001] The present invention relates to a crate or similar container for storing and/or transporting bottles and similar articles which may be held in carriers. More in particular, the present invention relates to a crate comprising a base, side walls, and positioning elements defining bottle positions, which crate is arranged for accommodating bottle carriers.

[0002] Crates for storing and/or transporting bottles and similar articles are well known. Bottle crates typically have 12 or 24 bottle positions defined by partitions and/or other dividing elements, for example pillars. A crate provided with such pillars, also called "cones" or "pinnacles" (German: Pinolen) is disclosed in, for example, British Patent GB 758 517 (Turner). The pillars, which extend from the base of the crate in a direction parallel to the side walls, that is vertically if the base is horizontal, each define four bottle positions and assist in the insertion of the bottles into the crate.

[0003] Both pillars and partitions can be used to define the bottle positions in a crate. An example is disclosed in German Patent Application DE 38 06 924 (Theysohn), where the crate is suitable for accepting bottle carriers. Such bottle carriers, which are typically made of carton, often contain six bottles ("six-pack"), and facilitate the handling of the bottles. Openings may be provided in the bottle carriers to accommodate the pillars, as illustrated in, for example, United States Patent US 4 071 162 (Schoeller).

[0004] The crate of DE 38 06 924 mentioned above is designed for accommodating four carriers, each carrier accommodating six bottles. To this end, the crate is divided into four sections by a longitudinal and a transverse partition, each section being designed for receiving one six-bottle carrier ("six-pack").

[0005] However, some bottle carriers are not designed for six bottles but for four bottles ("four-packs"), possibly only bottles. Due to the wall thickness of the carriers it would be very difficult, if not impossible, to accommodate four-packs in the crate of DE 38 06 924, even if a slit were provided in the carrier for receiving the transverse partition. Two adjacent four-packs would be separated by twice the wall thickness of the carriers. This would present a problem, as the bottle positions are spaced so as to provide a tight and space-saving fit of the bottles.

[0006] It is an object of the present invention to overcome these and other problems of the Prior Art and to provide a crate comprising dividing elements which is capable of accommodating both four-bottle carriers and six-bottle carriers.

[0007] It is a further object of the present invention to provide a crate comprising dividing elements which is both strong and economical.

[0008] Accordingly, the present invention provides a crate for bottles, the crate comprising a base and side walls extending from the base, wherein dividing elements define bottle positions arranged in rows and having mutual spacings, and wherein both the second and the third spacing in a row are greater than the first spacing.

[0009] By providing increased spacings between those bottle positions where two carriers may adjoin, the wall thickness of the carriers is accommodated and a good fit of the carriers in the crate is achieved. The third spacing, between the third and the fourth bottle position in a row, accommodates the walls of the carriers when six-packs are used. The second spacing, between the second and the third bottle position in a row, accommodates the walls of the carriers when four-packs are used. In this way, both four-packs and six-packs can be used.

[0010] In a crate of the present invention, the second and the third spacing may each be at least 0.5 mm greater than the first spacing, preferably at least 1.0 mm, for example 2.0 mm. The actual difference in spacings may also depend on the dimensions of the bottles.

[0011] Preferably, four rows of six bottle positions are provided in the crate, resulting in twenty-four bottle positions. However, other numbers of bottle positions are also possible, for example twelve or thirty-six.

[0012] In a preferred embodiment of the crate according to the present invention, the dividing elements comprise pillars extending substantially perpendicularly from the base, in parallel with the side walls. These pillars are very useful for defining the bottle positions and guiding the bottles into their positions when the crate is being filled. However, it has been found that the free-standing pillars are structurally weak and are easily bent or even torn off. According to an important further aspect of the present invention, therefore the dividing elements may comprise partitions, each pillar being connected to a partition.

[0013] By connecting each pillar to a partition, the pillars are much more stable and damage to the crate is much less likely. Preferably the pillars will be integral with partitions and be located in a middle section of a respective partition. It will be clear that when a pillar is located in a middle section of a partition, any bending of the pillar is effectively prevented, in particular bending in the plane of the partition. In addition, the partitions add to the structural rigidity of the crate.

[0014] In a preferred embodiment, the partitions comprise a primary partition extending between two first side walls and at least two secondary partitions extending between the primary partition and second side walls. The primary partition may for example extend in the longitudinal direction of the crate and be higher and/or thicker, while the secondary partitions may extend in the transverse direction of the crate, between the primary partition and the longer side walls, and be lower and/or thinner. However, it is also possible for all partitions to have the same height and/or the same thickness.

[0015] When the secondary partitions extend in the transverse direction of the crate, between the primary partition and the longer side walls, these partitions sig-

nificantly strengthen the crate and prevent any flexing of the longer side walls. This is an important additional advantage of the crate of the present invention.

[0016] Advantageously, the pillars are directly connected to the secondary partitions only. This results in a practical and effective lay-out of the crate in which an excessive amount of pillars is avoided while providing sufficient stabilization and positioning of the bottles.

[0017] The pillars preferably have an approximately square cross-section, more preferably a rounded, slightly concave square cross-section, but other cross-sections are also possible, for example circular ones. In the latter case, the pillars could be shaped as cones.

[0018] The crate of the present invention is advantageously integrally manufactured from a plastics material, preferably polyethylene. However, it is also possible to assemble the crate of the present invention from separately produced components, which may be made of a plastics material, wood, metal or any other suitable material.

[0019] The present invention also provides a crate as defined above wherein bottle carriers containing bottles are accommodated.

[0020] The present invention will further be explained below with reference to exemplary embodiments illustrated in the accompanying drawings, in which:

Fig. 1 schematically shows, in top view, a preferred embodiment of a crate according to the present invention;

Fig. 2 schematically shows, in a cross-sectional view, the preferred embodiment of Fig. 1.

Fig. 3 schematically shows, in top view, bottle positions and their mutual spacings in a bottle crate.

[0021] The bottle crate 1 shown merely by way of non-limiting example in Figs. 1 and 2 comprises an open base 2 which consists of a lattice work. Integral with the base 2 are upstanding first side walls 3 and second side walls 4, the former being longer than the latter. A primary partition 5, upstanding from the base 2 and in parallel with the first side walls 3, extends in the longitudinal direction of the crate between the second side walls 4. A plurality of secondary partitions 6, upstanding from the base 2 and in parallel with the second side walls 4, each extend between a first side wall 3 and the primary partition 5 respectively.

[0022] Pillars 7 are also upstanding from the base 2, extending substantially perpendicularly to the base, and serve to define bottle positions 8 (see also Fig. 2). In accordance with the present invention, the bottle positions 8 are carefully spaced, as will be explained in more detail with reference to Fig. 3.

[0023] The pillars 7 are shown to have an approximately square cross-section. However, in the embodiment of Fig. 1 the sides of the pillars 7 are concave to better accommodate the bottles, while the comers of the pillars 7 are rounded. As can be seen, the pillars 7 are each integral with a secondary partition 6. This greatly increases the stability of the pillars while also reinforcing the crate.

[0024] In particular, the secondary partitions 6 which are connected to (and preferably integral with) the longer side walls 4 prevent any flexing of these side walls and therefore significantly add to the structural rigidity of the crate.

[0025] As schematically shown in Fig. 3, the bottle positions 8 have mutual spacings S1, S2 and S3, measured between the centres of the bottle positions. As mentioned above, these bottle positions and thereby the spacings are defined by the positioning elements (partitions and pillars). In accordance with the present invention, these mutual spacings are not equal: starting from one end of the crate (a secondary side wall 4 in Fig. 1) the first spacing S1 is smaller than the second spacing S2 and the third spacing S3. As can be seen, the arrangement is symmetrical in that the spacings of a row of six bottle positions 8 form a sequence S1 - S2 - S3 - S2 - S 1. The particular spacings serve to accommodate bottle carriers 10 and 11, which are typically made of carton.

[0026] In the schematic example of Fig. 3, the two top rows of bottle positions 8 accommodate two carriers 10 for six bottles each, so-called six-packs, while the two bottom rows are filled with three carriers 11 for four bottles each, so-called four-packs. As can be seen, the two six-packs 10 abut between the third and fourth bottle positions of the top rows, in the third spacing S3. This double layer of material (for example carton) required additional space, and for this reason the third spacing S3 is greater than the first (standard) spacing S1. The three four-packs 11, however, abut between the second and third bottle position and the fourth and fifth bottle position, in the second spacing. This double layer of material requires the second spacing S2 also to be greater than the first spacing S1.

[0027] In a practical embodiment, the actual increase of the spacings in accordance with the present invention will depend on the presence of (optional) partitions between the bottle positions and the dimensions of the partition, the dimensions of the bottles, and other factors. In a typical embodiment, the further spacings S2 and S3 may be at least 0.5 mm but preferably about 1.0 to 2.0 mm greater than the first spacing S1, although differences of for example 3.0 mm may also be possible.

[0028] A crate according to the present invention may be provided with six-packs, or four-packs, or both. In the crate of Fig. 1, for example, two six-packs and three four-packs could be accommodated at the same time. It will be clear that the crate of the present invention is also capable of accommodating two-packs, that is, carriers containing two bottles.

[0029] The present invention is based upon the insight that for a crate to be suitable for four-packs and six-packs, a suitable spacing of the bottle positions is required. The present invention benefits from the further

insight that the stability and structural rigidity of the crate may be significantly improved by connecting the pillars to the partitions.

[0030] It is noted that any terms used in this document should not be construed so as to limit the scope of the present invention. In particular, the words "comprise(s)" and "comprising" are not meant to exclude any elements not specifically stated. Single elements may be substituted with multiple elements or with their equivalents.

[0031] It will be understood by those skilled in the art that the present invention is not limited to the embodiments illustrated above and that many modifications and additions may be made without departing from the scope of the invention as defined in the appending claims.

Claims

1. A crate (1) for bottles, the crate comprising a base (2) and side walls (3, 4) extending from the base, wherein dividing elements (5, 6, 7) define bottle positions (8) arranged in rows and having mutual spacings (S1, S2, S3), and wherein both the second (S2) and the third spacing (S3) in a row are greater than the first spacing (S1).

2. The crate according to claim 1, wherein the second (S2) and the third (S3) spacing are each at least 0.5 mm greater than the first spacing, preferably at least 1.0 mm.

3. The crate according to claim 1 or 2, wherein four rows of six bottle positions (8) are provided.

4. The crate according to any of the preceding claims, wherein the dividing elements comprise pillars (7) extending substantially perpendicularly from the base.

5. The crate according to any of the preceding claims, wherein the dividing elements comprise partitions (5, 6), and wherein each pillar (7) is connected to a partition.

6. The crate according to claim 5, wherein the partitions comprise a primary partition (5) extending between two first side walls (3) and at least two secondary partitions extending between the primary partition (5) and second side walls (4).

7. The crate according to claim 5 and 6, wherein the pillars (7) are directly connected to the secondary partitions (6) only.

8. The crate according to any of the preceding claims, wherein the pillars (4) have an approximately square cross-section.

9. The crate according to any of the preceding claims, integrally manufactured from a plastics material, preferably polyethylene.

10. The crate according to any of the preceding claims, wherein bottle carriers (10, 11) containing bottles are accommodated.

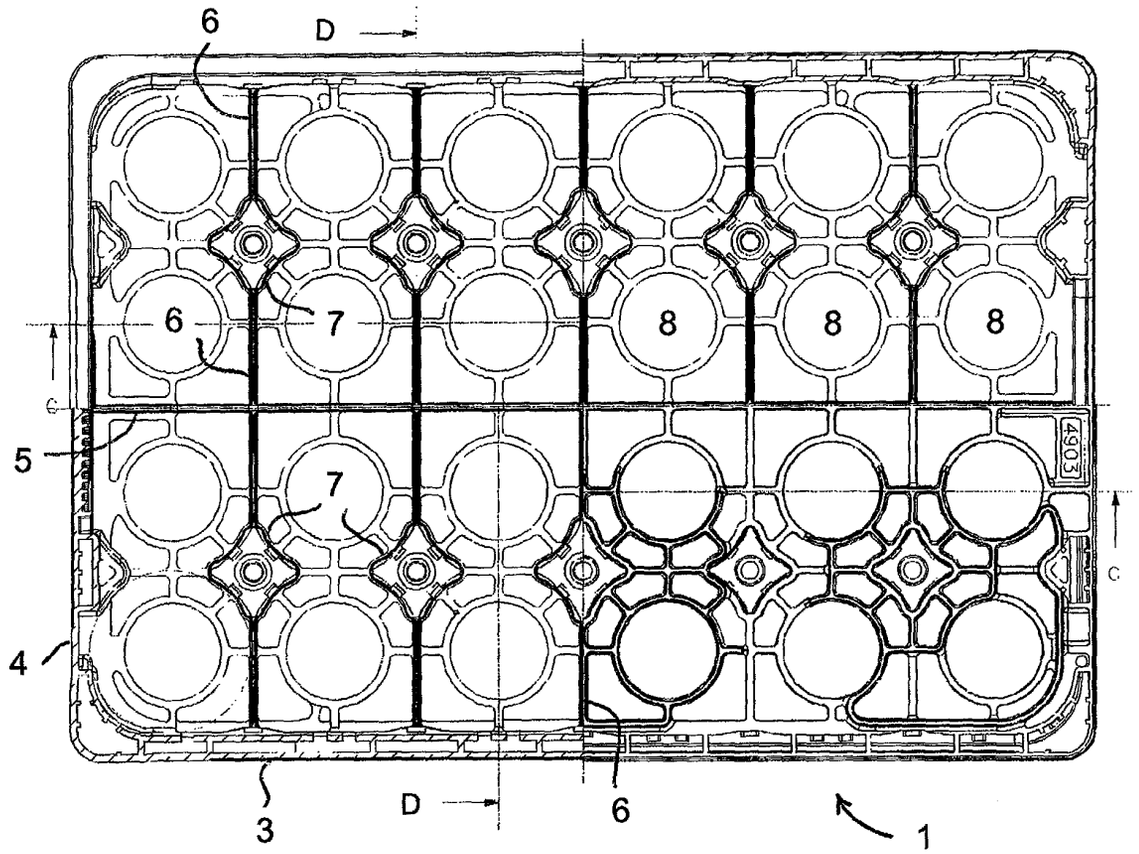

Fig. 1

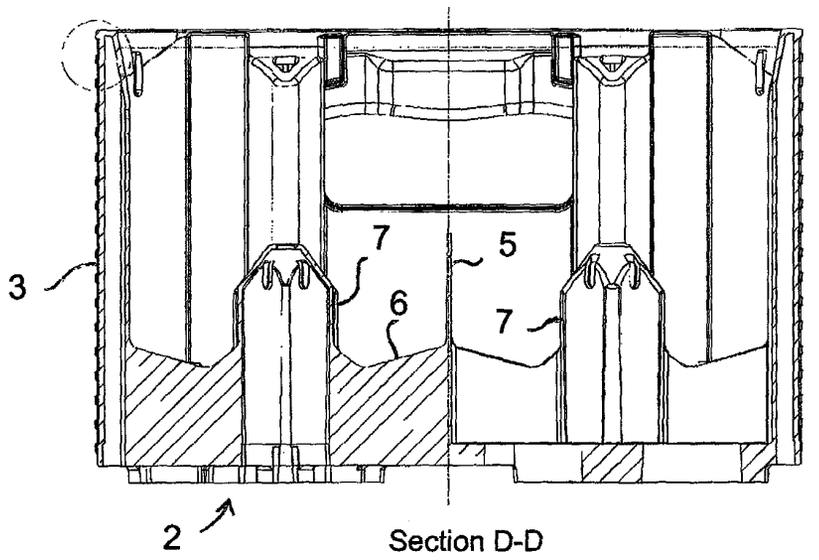

Fig. 2

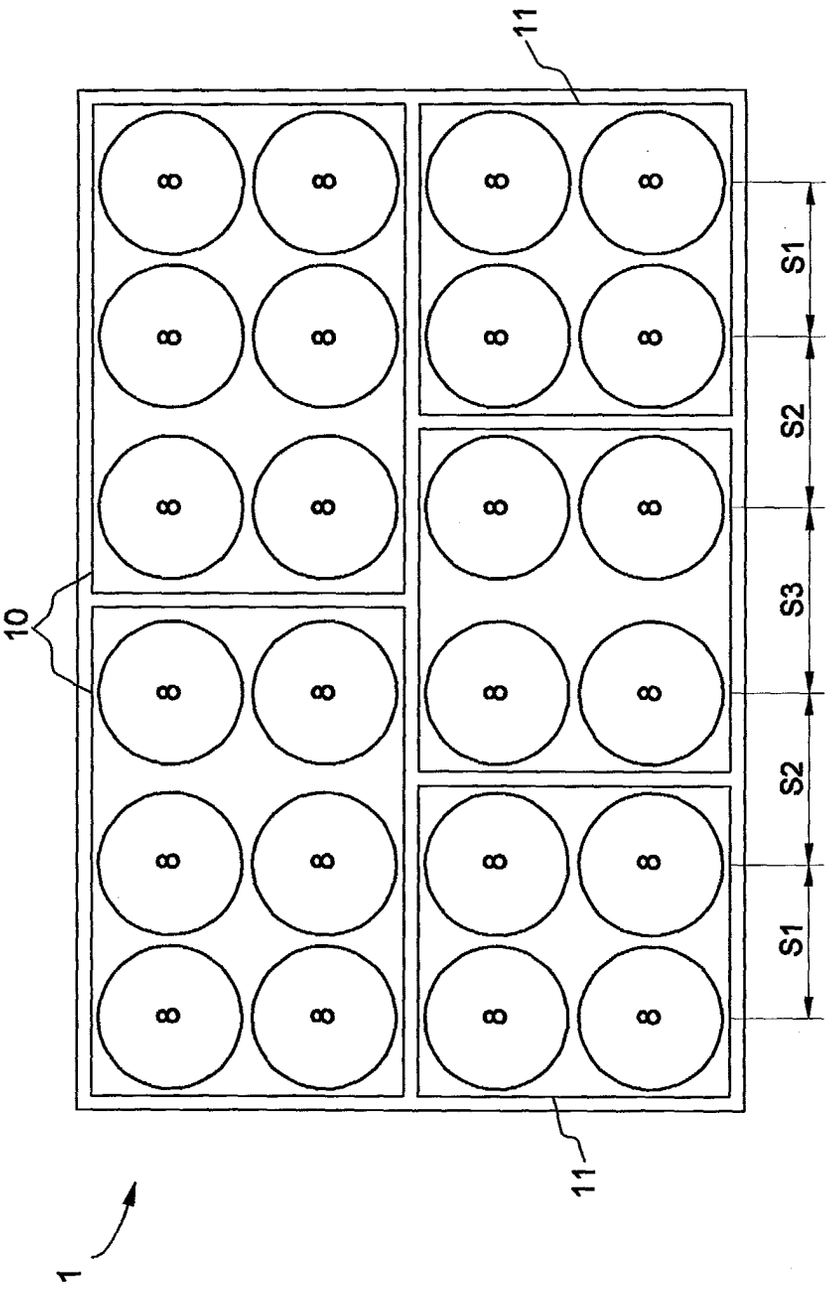

Fig. 3

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EUROPEAN SEARCH REPORT

Application Number
EP 03 07 8076

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.7)
A	DE 296 04 306 U (CONSTIN HANS PETER) 23 May 1996 (1996-05-23) * figures 1.1,5 *	1,3-10	B65D1/24
A	BE 1 010 045 A (D W PACKING NAAMLOZE VENNOOTSC) 2 December 1997 (1997-12-02) * figure 1 *	1	

TECHNICAL FIELDS SEARCHED (Int.Cl.7)

B65D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	3 March 2004	Bridault, A

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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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
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03-03-2004

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