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(54) A container provided with markings

(57) A plastics container (1) for storing and/or transporting objects, such as bottles, comprises a base (2) and at least two side walls (3). Visible markings (11), such as a brand or bottle type, are provided by a marking element which is partially embedded in a layer (7) moulded onto an area the container. The area may be part of a handle section (6) of the container, and the moulded layer (7) may consist of a relatively soft material.

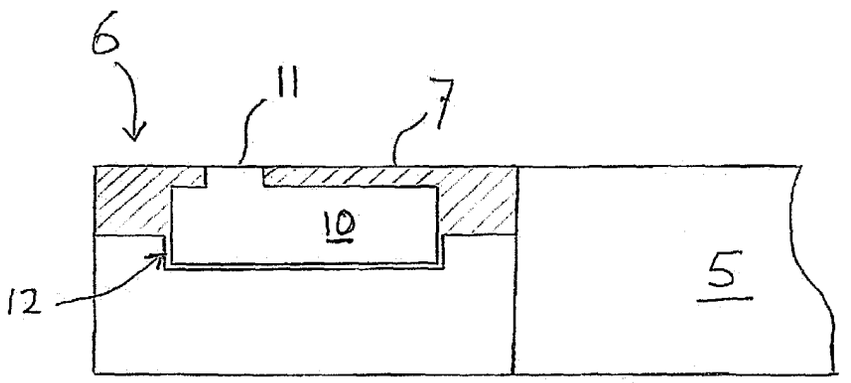

Fig. 3

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Description

[0001] The present invention relates to a container, such as a bottle crate, provided with markings. More in particular, the present invention relates to a container for storing and/or transporting objects, which container comprises a container body made of a plastic material and comprising a base and at least two side walls extending from the base, wherein at least one of the side walls is provided with a marking element showing markings.

[0002] It is well known to provide markings, such as a brand name or product name, on the side walls of a container. British Patent GB 868,638 (The Richardson Company), for example, discloses a moulded plastic bottle carrying case, the side walls of which are provided with raised advertising indicia which may be painted to enhance their visibility. As said British Patent already acknowledges, paint is susceptible to abrasion and as a result, the markings will gradually become less visible and hence less effective. A protective rim is therefore provided on the side walls in an attempt to protect the raised indicia from abrasion. So-called in-moulded labels as disclosed in, for example, WO 00/42591 (D W Plastics), suffer from the same drawback.

[0003] European Patent Application EP 0 490 165 (Peguform-Werke) discloses a bottle crate in which indicia are provided by means of an in-moulded insert which is embedded in a handle section of the crate body. The insert is provided with spacer elements (in German: "Abstandsnoppen") for positioning the insert in the mould during the moulding of the crate body. The spacer elements, which have different cross-sectional shapes such as a square, a cross or a circle, are visible from outside the moulded crate and form an identification which may represent certain information, such as the name of the manufacturer or the date of manufacture. It is noted that the indicia disclosed in EP 0 490 165 are symbols, not letters.

[0004] The markings provided by such an insert are highly resistant to abrasion. However, it has been found that providing an insert in the crate body limits the flexibility of the production process, as the insert and hence the markings cannot be changed once the crate body is moulded. In addition, providing an insert in the crate body slows down the production process of the crate body.

[0005] It is an object of the present invention to overcome these and other problems of the Prior Art and to provide a container provided with markings which offers a greater flexibility, allowing different markings to be applied without altering its body.

[0006] Accordingly, the present invention provides a container for storing and/or transporting objects, which container comprises a container body made of a plastic material and comprising a base and at least two side walls extending from the base, wherein at least one of the side walls is provided with a marking element showing markings, which container is characterised in that the marking element is embedded in a layer moulded onto an area of the container.

[0007] By embedding the marking element in a layer which is moulded on the container body, instead of embedding the marking element in the container body itself, the container body is made independent of the markings. In other words, a generic container body may be produced that is later fitted with a selected marking element. This allows a single container body design to be made in much larger quantities. In addition, the production process is made much more flexible as the generic container body may be fitted with a selected marking element so as to produce an individually marked container.

[0008] It is noted that the word "embedded" as used here is not intended to mean "surrounded completely". Instead, a partial embedding of the marking element in the layer is envisaged, such that part of the embedded marking element is still visible from outside the layer so as to show the markings.

[0009] In certain embodiments, the moulded layer and the container body are made of the same plastic material, for example HDPE (High Density PolyEthylene) or any other suitable material. In these embodiments, the layer may have the same colour as the crate body, thus being inconspicuous while still providing the advantages of a flexible production. However, the layer may also have a different colour, even when the same material is applied.

[0010] In a preferred embodiment, however, the moulded layer and the container body are made of different materials. This allows a wide range of materials to be used for the embedding layer, virtually independently of the material of the container body. In particular, this allows the moulded layer to be made of a relatively soft material. Such a material, which may be a thermoplastic material having a Shore A hardness of 40 to 70, may be used to form a soft gripping layer. Containers provided with such relatively soft gripping layers and further details on suitable materials are disclosed in European Patent Applications EP 1 000 865 and EP 1 410 998 (D W Plastics).

[0011] Although the markings could show a design or symbol, it is preferred that the at least one marking element indicates a brand, type and/or number. If the container is a bottle crate for carrying beer bottles, for example, the markings could indicate the name of the brewer, the type of beer and/or the number and size of the bottles (for example "24 x 0.5"). Of course several marking elements could be provided in a single container, each marking element showings a brand, type and/or number.

[0012] In a particularly preferred embodiment, the at least one marking element is arranged at a handle section. This allows the markings to be present in highly visible parts of the container. In addition, the marking elements may be used to reinforce the handle sections,

thus obtaining an additional benefit.

[0013] Prior to moulding the embedding layer, the marking element may be glued to the container body or held by suitable tools. It is preferred, however, that the area where a marking element is to be applied is provided with holding means for holding the marking element. Such holding means may comprise grooves, ridges, pins or other suitable mechanical means for holding the marking element in its designated position prior to and during the moulding of the embedding layer. The marking element itself may also be provided with holding means, which then cooperate with holding means provided on the crate body. However, it is preferred that the holding means are constituted by a recess in the container body, shaped in such a way that the marking element may be snap-fitted in the recess.

[0014] In a particularly advantageous embodiment, the area where the marking element is to be applied is provided with channels for passing the material of the layer. Such channels allow the layer material, when liquid during the moulding process, to flow to the other side of the marking element. In this way, a more complete embedding of the marking element may be achieved. The channels are advantageously defined by undulations of the area where the marking element is to be applied. However, the channels may also be constituted by grooves in the area surface.

[0015] The container according to the present invention is advantageously a bottle crate. Such a crate may be provided with dividers for separating any bottles. Other types of containers may also be envisaged, such as trays and pallets.

[0016] The present invention further provides a method of providing a container with markings, the method comprising the steps of:

- providing a container body comprising a base and side walls,
- providing an element shaped to form markings,
- positioning the element on the container body, and
- moulding a layer onto an area of the container body so as to embed the insert while exposing the markings.

[0017] 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 side view, a container according to the present invention.
Fig. 2 schematically shows, in side view, part of the container of Fig. 1 in more detail.
Fig. 3 schematically shows, in cross-sectional view, part of the container of Fig. 1 in more detail.
Fig. 4 schematically shows, in cross-sectional view, part of the container of Fig. 1 in more detail.

[0018] The crate 1 shown merely by way of non-limiting example in Fig. 1 comprises a crate body that consists of a base 2 and side walls 3 extending from the base 2. The crate 1 may have four side walls 3 enclosing an inner space in which bottles may be accommodated. The inner space (not shown) may be provided with dividers for forming bottle compartments.

[0019] An opening 5 in one of the side walls 3 defines a handle section 6. This handle section 6, which extends between the opening 5 and the upper rim 4, is in the example shown covered by a layer 7 showing markings 11. In accordance with the present invention, the markings 11 are provided by an insert (marking element) embedded in the layer 7.

[0020] In the embodiment shown, the layer 7 is a relatively soft gripping layer made of a material having, for example, a Shore A hardness of 40 to 70, more preferably ranging from 50 to 60. Suitable materials are thermoplastic elastomers, for example SEBS (Styrene Ethylene Butadyene Styrene), which has the advantage of an excellent bonding to HDPE (High Density PolyEthylene) which is a suitable material for the crate body. Further details of such a relatively soft "gripping" layer are disclosed in European Patent Application EP 1 410 998 (D W Plastics).

[0021] A handle section 6 prior to the application of the layer 7 is shown (enlarged) in Fig. 2. The handle section 6 is shown to have a surface area 9 on which the layer 7 (Fig. 1) is to be applied. The markings 11 are shown to be part of a marking element 10 that is placed on the handle section 6. The marking element 10 is preferably an elongated, relatively flat member from which one or more letters or other marks protrude. Instead of a single marking element 10, however, a string of smaller marking elements could be used, each smaller marking element showing an individual letter or mark.

[0022] The (enlarged) cross-sectional view of Fig. 3, taken along the line A - A in Fig. 2 after the layer 7 has been applied, shows how the marking element 10 is embedded in the layer 7. A marking 11 of the marking element 10 extends through the layer 7 and is visible from outside the handle element 6. The layer 7 therefore (partially) embeds the marking element 10, leaving at least the outer surfaces of the markings 11 uncovered.

[0023] The layer 7 may be applied on the handle section 6 by means of a well-known so-called over-moulding process, in which relatively small moulds are placed over the handle section(s) 6 and are injected with the layer material. The marking element 10 is placed on the crate body (in the present example: the handle section) before this over-moulding takes place, preferably before the moulds are placed over the handle section(s). Alternatively, the marking element(s) 10 could be placed in a mould used for over-moulding.

[0024] As can be seen from Fig. 3, the marking element 10 is placed in a recess 12 in the area 9. This recess 12 (which is shown slightly enlarged for the sake of clarity of the illustration) is advantageously shaped to as to clamp the marking element 10. This allows the

marking element 10 to be held in its designated position when the over-moulding takes place and removes the need for any positioning tools or adhesive. Instead of, or in addition to, the recess 12 other holding means for holding the marking element in place can be envisaged, such as grooves, pins and sockets, and other mutually engaging parts.

[0025] In the example of Fig. 3, the marking 11 is shown to be substantially flush with the outer surface of the handle section 6. This is, however, not essential and embodiments can be envisaged in which the markings 11 protrude from the outer surface of the crate 1.

[0026] The (enlarged) cross-sectional view of Fig. 4, taken along the line B - B in Fig. 2 after the layer 7 has been applied, also shows how the marking element 10 is embedded in the layer 7. In the embodiment of Fig. 4, the surface (9 in Fig. 2) of the container body on which the marking element 10 is applied is provided with undulations so as to form channels 13 underneath the marking element 10. These channels 13, which may be approximately 0.5 to 3 cm apart, allow the material of the layer 7 to flow around the marking element 10 during the over-moulding process. It is noted that material is typically injected in one side of a mould only. The channels 13 allow the layer material to fully embed the element 10 while leaving the markings 11 uncovered. It will be understood that in the embodiment shown the depth of the channels 13 is defined by the depth of the recess 12 (Fig. 3).

[0027] The present invention offers the significant advantage of providing lasting markings that can be applied relatively late in the production process, as the crate body (consisting of the base, walls and, optionally, any dividers) need not have any markings. A generic crate body can be produced on which a selected marking element can then be mounted, if desired. Alternatively, the layer 7 can be applied without a marking element. Embodiments of a generic crate body can be envisaged which are also suitable for use without a layer 7, thus providing three alternatives: (a) a crate with a layer and markings, (b) a crate with a layer but without markings, and (c) a crate without a layer or markings. It will be clear that the present invention provides a significantly improved freedom of design.

[0028] In addition to a greater freedom of design, the present invention also reduces the cycle time (per unit production time) of the container body as the step of inserting an insert in the container body mould can be omitted. Also, there is no need for (typically retractable) insert holding tools in the container body mould. As a result, a standard moulds can be used, which further reduces the production cost.

[0029] Although the markings have been shown to be located at handle sections of the crate 1, it will be understood that this is not essential and that markings according to the present invention may be located at virtually any part of the crate. The layer 7 is preferably made of a relatively soft material but this is not essential, the layer 7 may also be made of the same material as the crate body (base 2 and walls 3), for example HDPE or polypropylene. Irrespective of the choice of material, the colour of the layer 7 may be identical to or different from the colour of the crate body. Accordingly, the present invention provides a large freedom of design.

[0030] The present invention may be applied to various containers including (bottle) crates, pallets and trays. Although such containers are preferably made of plastic, this is not essential.

[0031] The present invention is based upon the insight that an element showing markings may advantageously be embedded in a container to provide markings that are resistant to abrasion, and that a much greater design freedom is achieved when the element is embedded in a layer applied on the container body, instead of in the container body itself.

[0032] 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 container (1) for storing and/or transporting objects, which container comprises a container body made of a plastic material and comprising a base (2) and at least two side walls (3) extending from the base, wherein at least one of the side walls (3) is provided with a marking element (10) showing markings (11), **characterised in that** the marking element (10) is embedded in a layer (7) moulded onto an area (9) of the container.

2. The container according to claim 1, wherein the moulded layer (7) and the container body are made of the same plastic material.

3. The container according to claim 1, wherein the moulded layer (7) and the container body are made of different materials, the moulded layer (7) preferably being made of a relatively soft material.

4. The container according to any of the preceding claims, wherein the at least one marking element (10) indicates a brand, type and/or number.

5. The container according to any of the preceding claims, wherein the at least one marking element (10) is arranged at a handle section (6).

6. The container according to any of the preceding claims, wherein the area (9) is provided with holding means for holding the marking element (10).

7. The container according to any of the preceding claims, wherein the area (9) is provided with channels (13) for passing the material of the layer (7).

8. A method of providing a container (1) with markings, the method comprising the steps of:

- providing a container body comprising a base (2) and side walls (3),
- providing an element (10) shaped to form markings (11),
- positioning the element (10) on the container body, and
- moulding a layer (7) onto an area (9) of the container body so as to embed the insert (10) while exposing the markings (11).

9. The method according to claim 8, wherein the moulded layer (7) and the container body are made of the same plastic material.

10. The method according to claim 8 or 9, wherein the moulded layer (7) and the container body are made of different materials, the moulded layer (7) preferably being made of a relatively soft material.

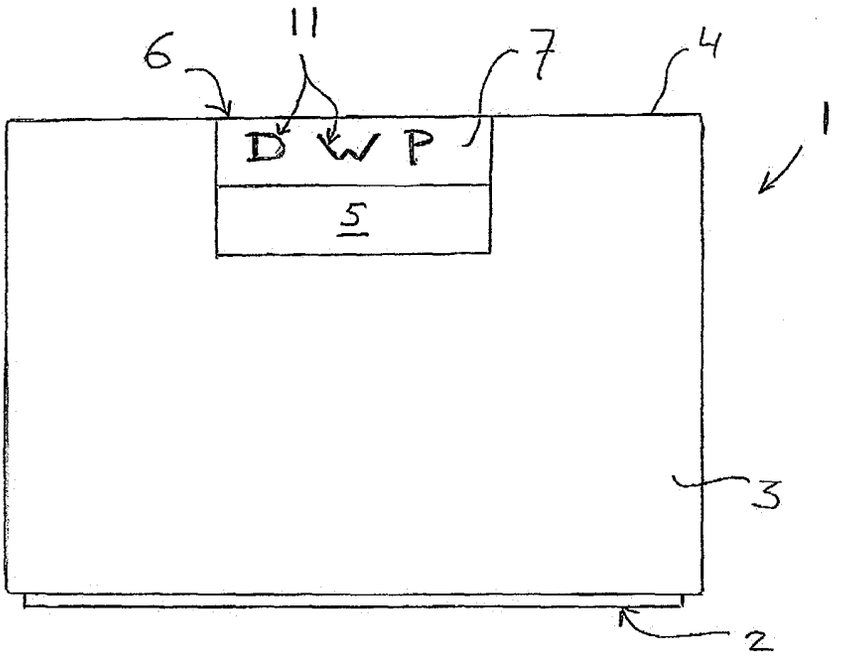

Fig. 1

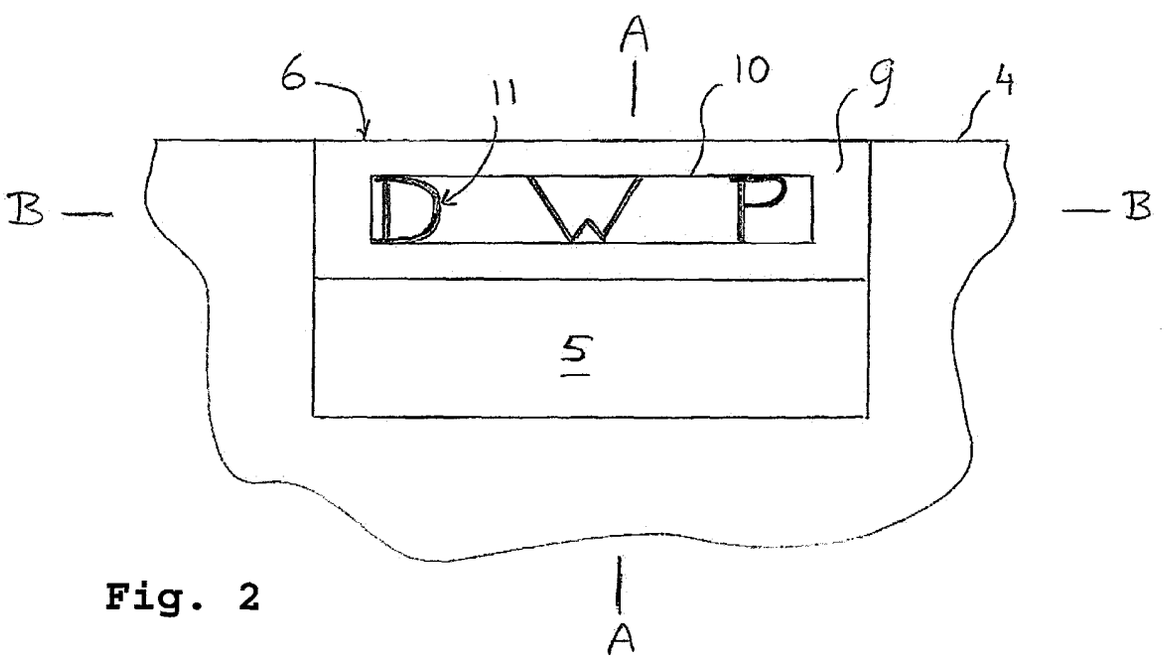

Fig. 2

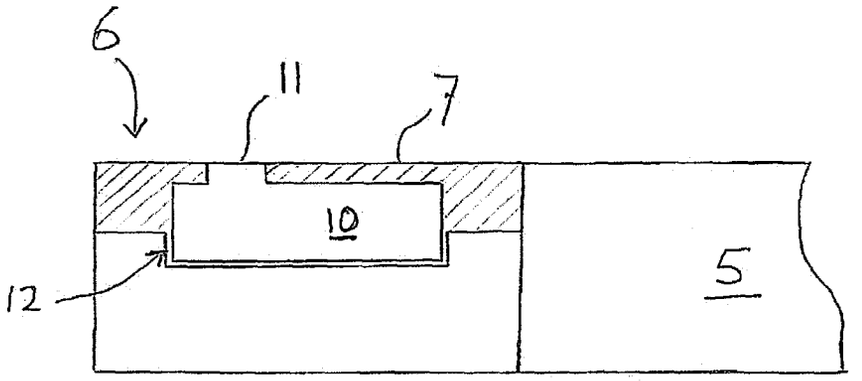

Fig. 3

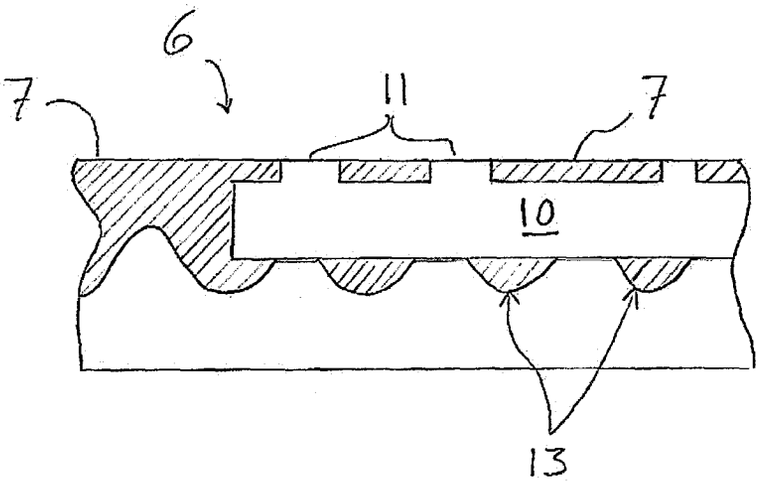

Fig. 4

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 04 07 6418

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Y	EP 0 743 166 A (RIBAS QUER VICTORIA) 20 November 1996 (1996-11-20) * column 1, line 42 - column 2, line 15 * * column 2, line 39 - column 3, line 33 * * figures 1,6-8 *	1-10	
A	US 2 586 978 A (WILLIAM MURRAY JOHN) 26 February 1952 (1952-02-26) * column 2, line 48 - line 52 * * column 3, line 10 - line 14 * * column 3, line 67 - line 75 *	6-10	
D,A	EP 0 490 165 A (PEGUFORM WERKE GMBH) 17 June 1992 (1992-06-17) * column 5, line 54 - line 58 * * figures 6,7 *	1-10	

TECHNICAL FIELDS SEARCHED (Int.Cl.7)

B65D
B29C

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	11 October 2004	Rodriguez Gombau, F

CATEGORY OF CITED DOCUMENTS

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