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DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU,
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(54) Title: WATER CONTAINER WITH A CONTRASTING SURFACE

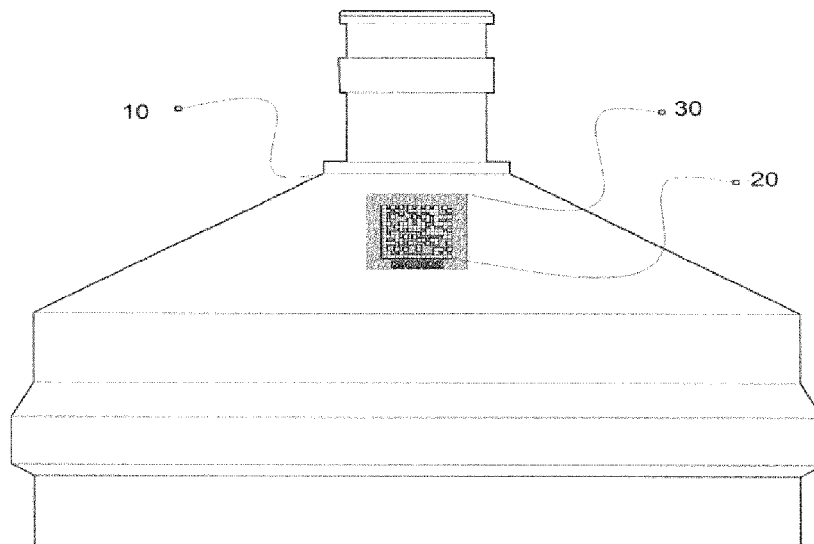


FIGURE 2

(57) Abstract: The invention relates to a reusable water container (10) on which a coded label (20) is used for traceability. The invention is about a contrasting surface (30) where the coded label (20) is positioned on the water container (10).



WO 2016/110546 A1

DESCRIPTION

WATER CONTAINER WITH A CONTRASTING SURFACE

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Technical Field

The life cycle of reusable 19 LT plastic water bottles (reuse of the same packing) must be limited to maximum 3 years or 75 refilling. This invention is related to liquid containers with a contrasting surface to allow for information about the phases, which a 19 LT plastic water bottle passes through during the supply channel starting from the filling process, and to ensure retrospective traceability of such phases.

The invention is particularly related to liquid containers which allow for clear readability of the coded label linked with the contrasting surface to indicate whether the bottle is full or empty by means of the contrasting surface made on the bottle body.

The Known State of the Technique

Reusable 19 LT plastic water bottles (especially potable water bottles) require traceability during the life cycle in terms of water quality as well as the production, washing, filling, and distribution processes of water bottles for reasons such as hygiene, control, etc. Therefore, data storage elements such as RFID chip, QR code, bar code, matrix code, etc are adapted on water bottles.

25

EPC data (electronic product code) which is specifically defined for each water bottle is encrypted and locked in the above mentioned data storage elements. Data such as how many times a water bottle is refilled during its life cycle, the processes during the filling, the production data about the bottle, and the expiry date can be updated and tracked by a central unit by means of the EPC data. The data storage elements allow for access to the contained information when a suitable reader is used. Thus, the producer or consumer can also have access to the information about the bottle.

The data storage elements used in the existing technique are in the form of labels applied on the water bottles. These labels can become deformed or lose adhesive characteristics in time due to external factors, or can be removed intentionally by some people. Consequently, the data storage elements used in the existing technique cannot be permanent due to

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deformation or removability, or sterilization processes at high temperatures, or exposition to environmental conditions.

A search in connection with the known state of the technique revealed an application titled "A
5 useful model for water bottles carrying an RF-ID chip" with reference no 2013/03408. This application relates to chips of various characteristics fixed on different areas of water bottles in order to track the number of refills. A chip hole is created on the neck of water bottles during or after the production stage. Afterwards, a chip of glass or other characteristics is placed in the hole. The invention involves an RF-ID chip which is affixed anywhere on the
10 bottle and then covered by melted plastic (thermal treatment), or placed in the special chip hole. All the production stages of this useful model for traceability is difficult and costly. Besides, a structure which must be developed in order to prevent data loss between the chip and antenna during reading is not even mentioned.

15 The search in connection with the known state of the technique revealed another application with reference no 2013/03445. The summary of this invention states that: "The invention involves imprinting data storage elements such as a bar code, QR code, matrix code, etc, which contains a specific identity code generated for each water bottle, by means of laser burning technique." This application is about marking on water bottles by means of laser
20 burning technique.

The existing technique seeks to track the life cycle of water bottles by means of the 2D code printed by a laser printer. However, various reasons such as the material used in the production of the water container, constantly vibrating filling line, and the environmental
25 factors affect the optical readers adversely, and thus successful reading is not possible. Under these circumstances, the number of optical devices must be increased (up to 4-6) for successful reading, which in turn requires modification of the filling lines causing disadvantage in terms of performance and cost. Besides, since the filling information is not tracked it is not possible to access the up-to-date filling data and to pass it to the consumer.

30 At present, the life cycle of water bottles cannot be fully tracked. The life cycle of water bottles is 3 years, and the maximum number of refills is 75. Water bottles which do not meet either of these prerequisites or has completed the lifecycle must be discarded from the system. The essential factor that determines the life cycle is whether or not a water bottle is
35 used and protected suitably.

In conclusion, the existence of the above mentioned problems and the inadequacy of the present solutions necessitated developments in the technical field.

The Purpose of the Invention

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The invention, which relates to water containers with a contrasting surface, has been inspired by the current conditions and developed in order to eliminate the above mentioned disadvantages and create new benefits for the technical field.

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The purpose of the water containers with a contrasting surface, which is the subject matter of the invention, is to prevent any reflection during the reading for traceability and tracking of water containers (19 LT water bottles in particular). With the contrasting surface where the coded label is to be placed on the water container any reflection occurring under the code reader in full or empty state has been prevented and the reading performance has been enhanced also because of the effect of the PC material used in the production of wayet bottles.

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Another purpose of the invention is to facilitate and accelerate reading when the container is full or empty by means of only one reader due to the contrasting surface of the water bottle.

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Thus, the reading capacity has been enhanced.

Still another purpose of the invention is to adapt the data storage elements, which are used for tracking and monitoring, on reusable water bottles in a manner that will prevent deformation due to any external factors during the life cycle of water bottles.

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A further purpose is to ensure easy detection of water bottles with expired life cycles. Thus, no water bottles which have completed their life cycles and are dangerous to health shall be used.

30

The contrasting surface, which is created on the water bottle to allow for clear reading of the coded label, will make it possible to achieve the above mentioned purposes.

The contrasting surface is positioned between the specific surface of the water container and the coded label to ensure clear visibility of the coded label. The water container in question has transparent characteristics and is preferably a water bottle.

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The structural characteristics and advantages of the invention will be understood more clearly with the figures given below and the detailed description written by referring to such

figures. Therefore, an evaluation of this invention must be made by taking into consideration the figures and detailed description.

5 **Figures that will help in understanding the invention**

Figure 1 shows the position of a coded label on the water container with a contrasting surface as an alternative.

10 Figure 2 shows a close-up view of the position of a coded label on the water container with a contrasting surface as an alternative.

Description of Part References

- 10. Water container
- 15 20. Coded label
- 30. Contrasting surface

Detailed Description of the Invention

20 In this detailed description, the preferred alternatives of the water container (10) with a contrasting surface (30) as the subject matter of this invention will be explained with no restricting effect only to understand the matter more clearly.

25 Figure 1 and Figure 2 show the position of the coded label (20) on a water container (10) with a contrasting surface (30) as the subject matter of this invention. The coded label (20) written by laser technology and positioned on the water container (10) contains the identity of a water container (10). The coded label in question (20) may be QR code (square code), bar code, or matrix code as an alternative.

30 A contrasting surface (30) is created on the water container (10) for a clear and sharp visibility of the coded label (20). The coded label (20) is positioned on the contrasting surface (30). This contrasting surface (30) creates a jagged design which does not deform the visibility. The contrasting surface (30) is formed on the water container (10) by laser technology without using an additional material. The surface of the water container (10) is
35 rasped in order to form a contrasting surface (30), and thus the shiny appearance is eliminated in the section where the coded label (20) is to be applied. With this contrasting

surface (30) formed on the water container (10), a contrasting effect is achieved on the coded label to allow for easy optical reading when the water container (10) is full or empty.

The water container (10) is tracked and monitored at all the stages from production to supply to consumers by means of the coded labels as well as the systems and control points that are used for reading the labels. The contrasting surface (30) created on the water container (10) prevents any reflections during the reading process and optimizes the performance of reading. Due to the contrasting surface (30) created on the water container (10), inspections are easily carried out by using only one reader at the filling facility.

Since it is completely out of the question to delete, scratch, or modify the written code in an ill-intentioned manner, perfect reading performance is ensured for the necessary traceability system during the entire life cycle of the water bottle.

CLAIMS

1. The reusable water container (10) on which a coded label (20) is used for traceability contains a contrasting surface (30) created on the surface where the coded label (20) is to be positioned on the water container (10) to allow for clear reading.
5
2. The water container (10) mentioned in Requirement 1 has a jagged contrasting surface (30).
- 10 3. The water container (10) mentioned in Requirement 1 has a contrasting surface (30) formed by laser technology.
4. The water container (10) mentioned in Requirement 1 has transparent characteristics.
- 15 5. The water container (10) mentioned in Requirement 1 and Requirement 3 is a water bottle.

AMENDED CLAIMS

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1. A reusable water container (10) on which a coded label (20) is used for traceability, said container comprising a contrasting surface (30) created on the surface where a coded label (20) is positioned on the water container (10) to allow for clear reading.
2. The water container (10) according to Claim 1 which has a jagged contrasting surface (30).
3. The water container (10) according to Claim 1 wherein the contrasting surface (30) is formed by laser technology.
4. The water container (10) according to Claim 1 which has transparent characteristics.
5. The water container (10) according to Claim 1 and Claim 3 which is a water bottle.

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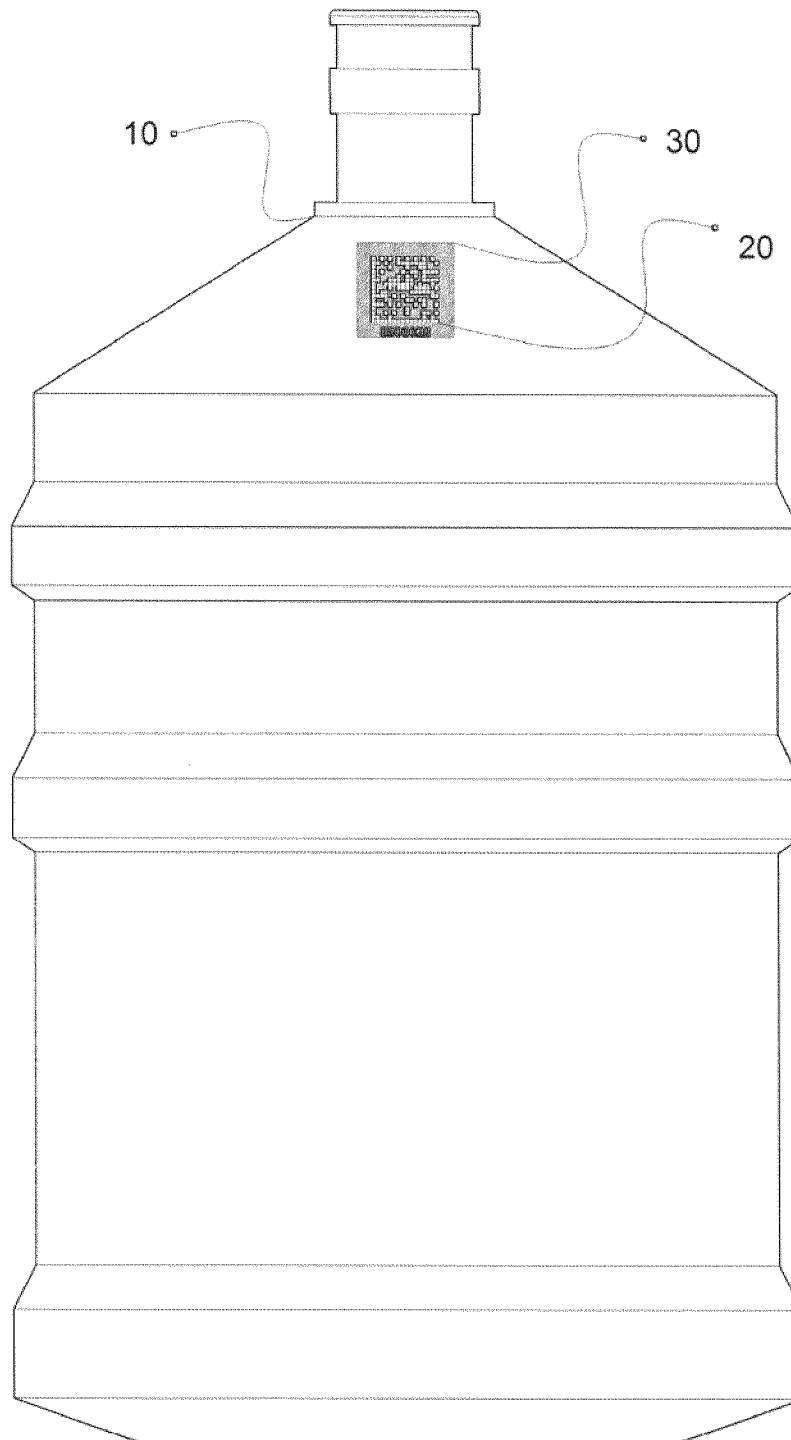


FIGURE 1

2/2

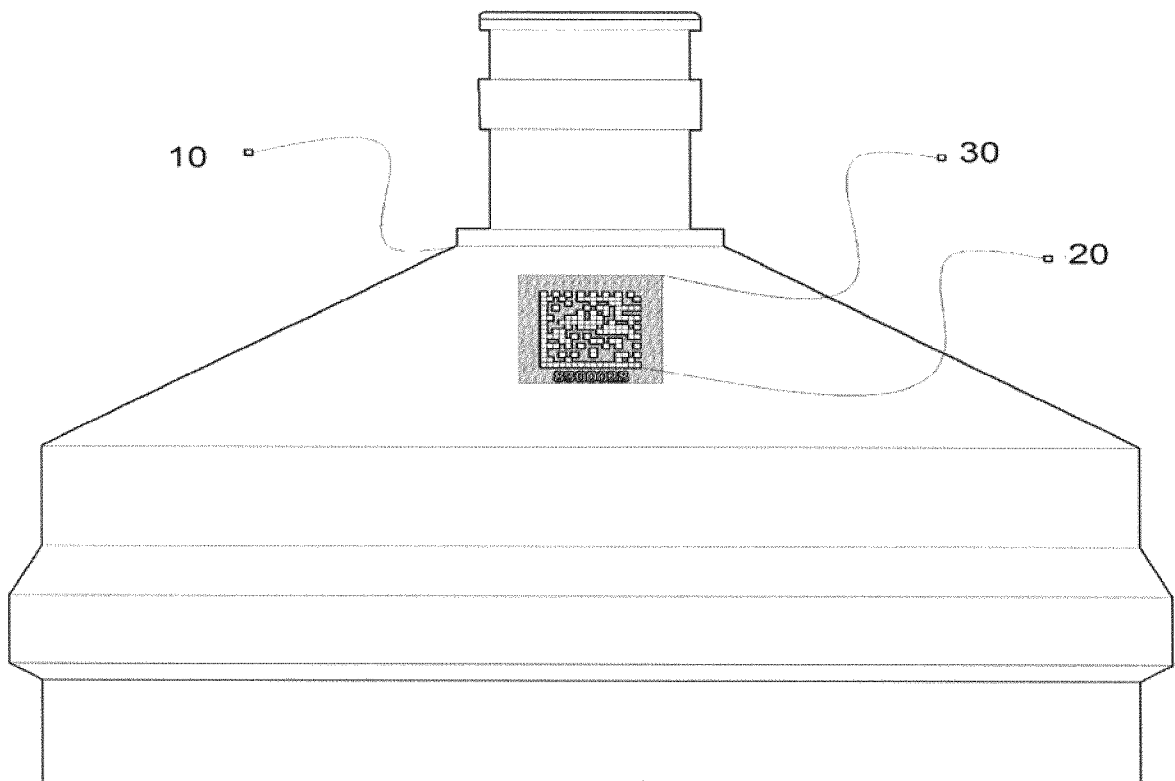


FIGURE 2

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2016/050223

A. CLASSIFICATION OF SUBJECT MATTER
INV. B65D23/00
ADD.

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)
B65D

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)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2011/089135 A1 (SIMON JOHN B [US] ET AL) 21 April 2011 (2011-04-21) paragraph [0066] -----	1-5
X	GB 2 042 408 A (YOSHINO KOGYOSHO CO LTD) 24 September 1980 (1980-09-24) claims 1, 2, 11 -----	1,2,4,5



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

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"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

"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 such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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		IT 1146904 B	19-11-1986
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