

⑩



Europäisches Patentamt
European Patent Office
Office européen des brevets

⑪ Publication number:

**0 041 713
B1**

⑫

EUROPEAN PATENT SPECIFICATION

⑬ Date of publication of patent specification: 14.11.84

⑭ Int. Cl.³: **B 65 D 8/04**

⑮ Application number: **81104370.2**

⑯ Date of filing: **05.06.81**

⑰ **Container for strong drinks.**

⑱ Priority: **09.06.80 JPU 79237/80**

⑲ Date of publication of application:
16.12.81 Bulletin 81/50

⑳ Publication of the grant of the patent:
14.11.84 Bulletin 84/46

㉑ Designated Contracting States:
DE FR GB

㉒ References cited:
**DE-A-2 812 636
DE-A-2 936 138
FR-A-2 163 513**

㉓ Proprietor: **NIHON MATAI COMPANY LIMITED
6-7, Motoasakusa-2-chome
Taito-ku Tokyo (JP)**

㉔ Proprietor: **MITSUBISHI RAYON CO. LTD.
3-19, Kyobashi 2-chome Chuo-Ku
Tokyo 104 (JP)**

㉕ Inventor: **Fukaki, Yasuo
2-206, Sumitomo-Kemigawa House
JP-17, Masago-3-chome Chiba-shi (JP)**
Inventor: **Imiada, Takeshi
23-3, Narusedai-3-chome
Machida-shi (JP)**

㉖ Representative: **Patentanwälte TER MEER -
MÜLLER - STEINMEISTER
Triftstrasse 4
D-8000 München 22 (DE)**

EP 0 041 713 B1

Note: Within nine months from the publication of the mention of the grant of the European patent, any person may give notice to the European Patent Office of opposition to the European patent granted. Notice of opposition shall be filed in a written reasoned statement. It shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European patent convention).

Courier Press, Leamington Spa, England.

Description

This invention relates to a container for strong drinks comprising an outer shell made of paper sheet and, inserted therein, an inner vessel made of plastic material, said outer shell and said inner vessel being joined together around their openings to form an integral brim.

Japanese Utility Model "Kokai" (Laid-open) No. 5,572/1974 has proposed as a substitute for glass vessels a disposable vessel comprising a vessel made of uncoated paper sheet and, inserted therein, a plastic inner vessel having a thick rim and a thin-walled body. Although suitable for the exclusive use as a receptacle for soft drinks, such a container may arouse problems when used for strong drinks. For instance, when filling with hot sake (Japanese fermented liquor made from rice) and then subjected to the showering treatment which is an indispensable next step, it is liable to become deformed owing to wetting of the paper sheet which is an essential component of the container. Moreover, depending upon the type of plastics selected for the inserted vessel, the alcohol in the strong drink exerts a solvent action upon the plastic vessel to cause partial dissolution of some constituent of the plastic material or partial transfer of its odor to the strong drink resulting in deterioration of the flavor of the latter.

DE-A-2812636 discloses a double-walled container comprising an outer shell made of paper sheet and inserted therein, an inner vessel made of plastic material, the outer shell and the inner vessel being joined together around their openings to form an integral brim.

DE-A-2936138 describes a double-walled container for introducing hot food products, which comprises an outer shell, an inner shell and a preprinted paper sheet introduced in between these shells, wherein said shells are made of plastic and joined by means of a flash.

The problem to be solved by the present invention is to improve said known double-walled containers in view of improving their ability for a long term storage of strong drinks and to develop a convenient container for strong drinks which, when filled with said strong drinks and stored for a long period of time, will keep the drink from permeation to the outside, odor transfer from the paper sheet or plastic material, contamination with the plastic material by dissolution and deterioration of the delicate flavour, not to speak of an agreeable aroma, of the drink, and, in addition, which is improved in operational efficiencies in various phases of its handling such as filling, shipping, transportation and storing.

It was now found, that the above problem can be solved by constructing the container in such a way, that an inner vessel made from a polyester having an intrinsic viscosity of 0.5 to 1.4 is inserted in an outer shell made of a plastic coated paper sheet.

The subject matter of the present appli-

cation therefore is a container for strong drinks comprising an outer shell made of paper sheet and, inserted therein, an inner vessel made of plastic material, said outer shell and said inner vessel being joined together around their openings to form an integral brim, characterized in that the outer shell is made of paper sheet coated on both sides with a plastic material and the inner vessel is made from a polyester resin having an intrinsic viscosity of 0.5 to 1.4.

The few examples of embodiments of the invention are illustrated below with reference to the accompanying drawings.

Fig. 1 shows the case in which the polyester vessel is inserted in close contact with the inner wall of a plastic-coated paper sheet shell. In the Fig. 1, 1 is an outer shell made of paper sheet 2 coated on both sides with plastic material 3 and composed of body 4 and bottom 5, both being joined to form an integral outer shell. 6 is a vessel made from a polyester having an intrinsic viscosity of 0.5 to 1.4 and is inserted in plastic-coated paper sheet shell 1 in close contact with the inner wall of the latter. The upper edge of body 4 of the plastic-coated paper sheet shell is flared to form flat flange 7 and rounded rim 8. The upper edge of polyester vessel 6 is also flared to form flat flange 9 approximating in pattern and size to the flange 7 and rounded rim 10. Both shell and vessel are assembled so that flange 9 is superposed upon flange 7 and the assembly is joined together by double seaming to integrate the shell and vessel along rims 8 and 10.

In the above example of the embodiment, the rims of both shell and vessel are in the form of flat flange. However, the rims are not limited to the flange form, but can be in beaded form. It is also possible to effect the integration by joining together the flanges of both shell and vessel with an adhesive instead of the double seaming.

Further, although in the above example the polyester vessel has a thick rim and a thin body wall in contrast to body 4 of plastic-coated paper sheet shell 1, other structures are possible. In joining together the rims 8 and 10 by double seaming, the rim of polyester vessel 6, no matter whether it is beaded or in the form of flange, should have a thickness just sufficient to withstand the operation of double seaming, while the wall thickness of the body adjoining to the rim can be as small as a thin film sufficient for receiving the strong drink. Therefore, the construction shown in the above example is preferred. One of the suitable methods for fabricating such a polyester vessel is so-called vacuum forming or pressure forming of a polyester sheet having a thickness of the flange 9. The structure of the plastic-coated paper sheet shell is not limited to that illustrated in the above example which is composed of the body and the bottom which are produced separately and bonded together.

Fig. 2 shows an example in which some

clearance 11 is provided between the inserted polyester vessel and the plastic-coated paper sheet shell. The numerical notation is the same as used in Fig. 1.

The plastic material to be coated on both sides of the paper sheet constituting the paper shell used in the container of this invention may be freely selected, because it does not come into direct contact with the strong drinks.

The polyester vessel used in this invention is made from a linear polyethylene terephthalate homopolymer or linear polybutylene terephthalate homopolymer consisting of recurring units of ethylene terephthalate or butylene terephthalate respectively, a copolymer comprising a small proportion of comonomer units in addition to the above recurring units, a blend of such homopolymers or copolymers, or a blend of such homopolymer and such copolymer.

The comonomers include dicarboxylic acid components such as isophthalic acid, adipic acid, sebacic acid, p- β -hydroxyethoxybenzoic acid, and alkyl ester derivatives thereof and glycol components such as ethylene glycol, butanediol, hexamethylene glycol, neopentyl glycol, and cyclohexanedimethanol.

The polyester vessel for use in the container of this invention can be fabricated by the method described in Japanese Patent Publication No. 5,107/1969 or No. 5,108/1969, in accordance with the use of the container, or by any other suitable method.

The polyester resin to be used as the material in fabricating the polyester vessel should have an intrinsic viscosity in the range of from 0.5 to 1.4, preferably from 0.6 to 1.2. If the intrinsic viscosity is below 0.5, the resin has a low alcohol resistance and is not suitable for the container intended for long-term use; also, such a resin has a low impact resistance. Accordingly the polyester vessel is liable to become deformed even by a slight impact exerted during the operation of inserting it into the plastic-coated paper sheet shell. If, on the other hand, the intrinsic viscosity exceeds 1.4, the moldability of the resin becomes insufficient for the fabrication of a vessel with uniform thickness. The intrinsic viscosity given above is the value determined at 25°C in a solution of a phenol-tetrachloroethane mixture (1:1 by weight).

The strong drinks to be filled in the container of this invention include sake, whisky, brandy, gin, vodka, wine, cocktails, shochu and fruit wines such as plum liqueur and others.

As fully described above, since the container of this invention has an outer shell, including the bottom thereof, which is made of a paper sheet coated on both sides with a plastic material, the filled container retains its original shape even after subjected to the showering treatment which is a necessary step for the container filled with sake at an elevated temperature. When the sake packed in the container is requested to be served hot, the filled container can be directly

immersed in hot water without any harm. When the sake is intended to be served cold, the filled container can be cooled or preserved in a refrigerator without causing either condensation of moisture on the outside surface of said container or deformation of said container due to moisture absorption, because the outer shell is made of a plastic-coated paper sheet.

The polyester vessel inserted in the plastic-coated paper sheet shell is made from a polyester resin having an intrinsic viscosity of 0.5 to 1.4, which is excellent in mechanical properties and chemical resistance, particularly in alcohol resistance. As a consequence, the polyester vessel is substantially inert to the solvent action of the alcohol contained in the strong drink filled in the polyester vessel, the dissolved amount of the polyester being too small to affect the odor or taste of the drink. The polyester vessel is free from the adverse effect of a plasticizer or a residual monomer contained in the polymer on the human body as is the case with a polyvinyl chloride resin. Since the polyester vessel itself is odorless, it causes no change in aroma and delicate taste of the strong drink. Moreover, the polyester vessel has an extremely low permeability to oxygen and carbon dioxide and there is no fear of degeneration in the quality of strong drink caused by these gases. Thus, it has now become possible to preserve strong drinks for a long period of time.

If a strong drink is filled in a container made of a paper sheet overlaid on one side with a plastic film, there will occur a phenomenon of oozing of the strong drink from the jointed part of the container, whereas the container of this invention is entirely free of such a phenomenon.

The fabrication of the container of this invention is performed with a high efficiency, because it is carried out simply by assembling the plastic-coated paper sheet shell and the polyester vessel which are separately provided and integrating the assembly along the rims of both shell and vessel by a simple means. The finished container is much lighter in weight as compared with a glass vessel of the same capacity, resulting in easier handling and improved efficiency in shipping, transportation and storing. The unprecedented features of the container are the outcome of this invention.

Claims

1. A container for strong drinks comprising an outer shell made of paper sheet, and, inserted therein, an inner vessel made of plastic material, said outer shell and said inner vessel being joined together around their openings to form an integral brim, characterized in that the outer shell (1) is made of paper sheet (2) coated on both sides with a plastic material (3) and the inner vessel (6) is made from a polyester resin having an intrinsic viscosity of 0.5 to 1.4.

2. A container for strong drinks according to

claim 1, characterized in that the inner vessel (6) is inserted in close contact with the outer shell (1).

3. A container for strong drinks according to claim 1, characterized in that the inner vessel (6) is inserted in the outer shell (1) with a clearance (11) therebetween.

Patentansprüche

1. Behälter für alkoholhaltige Getränke mit einer äußeren Hülle aus einem Papierblatt und einem darin eingebrachten inneren Gefäß aus Kunststoffmaterial, wobei die äußere Hülle und das innere Gefäß an ihren Öffnungen unter Bildung eines gemeinsamen Randes miteinander verbunden sind, dadurch gekennzeichnet, daß die äußere Hülle (1) aus einem Papierblatt (2) besteht, welches auf beiden Seiten mit einem Kunststoffmaterial (3) beschichtet ist, und das innere Gefäß (6) aus einem Polyesterharz mit einer Grenzviskositätszahl von 0,5 bis 1,4 gefertigt ist.

2. Behälter für alkoholhaltige Getränke nach Anspruch 1, dadurch gekennzeichnet, daß das innere Gefäß (6) in engem Kontakt mit der äußeren Hülle (1) eingeführt ist.

3. Behälter für alkoholhaltige Getränke nach

Anspruch 1, dadurch gekennzeichnet, daß das innere Gefäß (6) unter Bildung eines Abstands (11) in die äußere Hülle (1) eingebracht ist.

5 Revendications

1. Un récipient pour boissons alcoolisées comprenant une enveloppe extérieure formée d'une feuille de papier, et, inséré dans celle-ci, un récipient intérieur formé d'une matière plastique, l'enveloppe extérieure et le récipient intérieur étant joints ensemble à leurs ouvertures de façon à former un bord intégré, caractérisé en ce que l'enveloppe extérieure (1) est formée d'une feuille de papier (2) revêtue sur ses deux côtés d'une matière plastique (3) et le récipient intérieur (6) est formé d'une résine polyester ayant une viscosité intrinsèque de 0,5 à 1,4.

2. Un récipient pour boissons alcoolisées selon la revendication 1, caractérisé en ce que le récipient intérieur (6) est inséré en contact étroit avec l'enveloppe extérieure (1).

3. Un récipient pour boissons alcoolisées selon la revendications 1, caractérisé en ce que le récipient intérieur (6) est inséré dans l'enveloppe extérieure (1) avec un jeu (11) entre eux.

30

35

40

45

50

55

60

65

4

0041713

FIG. 1

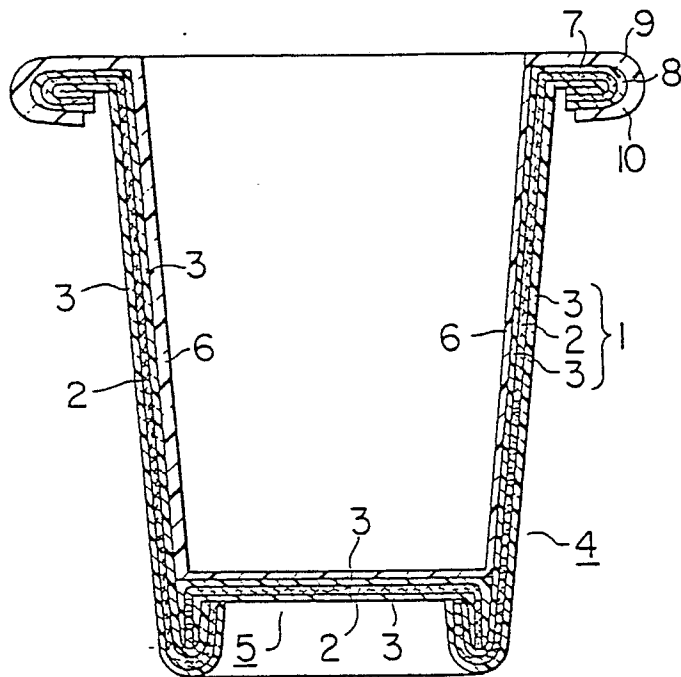


FIG. 2

