

(19)



Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) Publication number:

0 373 855
A1

(12)

EUROPEAN PATENT APPLICATION

(21) Application number: **89312901.5**(51) Int. Cl.⁵: **B65D 25/36, B65C 3/06**(22) Date of filing: **11.12.89**

The title of the invention has been amended
(Guidelines for Examination in the EPO, A-III,
7.3).

(30) Priority: **14.12.88 GB 8829162**(43) Date of publication of application:
20.06.90 Bulletin 90/25(84) Designated Contracting States:
AT BE CH DE ES FR GB GR IT LI LU NL SE

(71) Applicant: **CMB PACKAGING (UK) LIMITED**
Woodside Perry Wood Walk
Worcester WR5 1EQ(GB)

(72) Inventor: **Bates, Gary Philip**
43 Foster Road
Abingdon Oxon, OX14 1YW(GB)
Inventor: **Elliott, John**
16 Bellamy Close Ickenham
Uxbridge Middlesex, UB10 8SJ(GB)

(74) Representative: **Lerwill, John et al**
A.A. Thornton & Co. Northumberland House
303-306 High Holborn
London, WC1V 7LE(GB)

(54) **Container.**

(57) A container replicating the desired appearance of a directly printed plastics container, e.g. for paint, is made by printing a flat sheet of flexible polymeric material of sufficient thickness to resist crumpling when handled to provide a printed label and affixing the label to a plastics container. The container is intended primarily for proof purposes. Subsequently large numbers of plastic containers are printed directly using automated machinery, the printing plates having been obtained from the same basic artwork as those used for printing the label and the ink compositions being the same as those used when printing the label.

EP 0 373 855 A1

Production of Containers

This invention relates to the production of containers, and more especially to the production of containers having a printed plastics wall.

Plastic containers are very popular and are used for packaging a wide variety of goods. It is also common for such containers to be printed for applying, e.g. Trade Marks, information or directions relating to the contents and/or decoration. The printing is usually done by the container manufacturer so that the containers are supplied already printed to the customer who fills the empty containers with the appropriate product. It is normal practice for customers to be given proof containers to approve the printing for accuracy, colour, etc. before full scale production is commenced. This is regarded as an important quality control procedure and provides a safeguard to both the manufacturer and customer against the production of large numbers of faulty containers.

Nonetheless, the requirement to provide proof containers is an inconvenience to the container manufacturer as it entails setting up production line equipment to print a small number of containers needed for proof purposes. This is also uneconomic in view of the lost production time of the equipment involved. Furthermore, the need to co-ordinate the production of proof containers with normal production runs usually means a delay before proofs required by a customer can be delivered, and it is not very practical to produce a variety of slightly different proofs to give a customer some choice with respect to specific colouring for example.

As one specific example of known containers which are made of polymeric material and printed on their external surfaces there may be mentioned the right circular cylindrical containers used for packaging paints. These known containers suffer from the production drawbacks elucidated above as many different printed formats are called for due to the several different types and colours of paints which are available.

The present invention seeks to alleviate the inconveniences associated with the prior practice of producing proof containers printed using production equipment, and in accordance with the invention there is provided a container comprising a body with a cylindrical polymeric side wall, and a pre-printed label covering said side wall, the body constituting a structurally complete container even in the absence of the label, the label comprising a flexible sheet of polymeric material at least 0.15mm in thickness and of sufficient strength to enable the label to be handled without crumpling, and the label being printed in substantially flat

condition and being wrapped around the container body and secured in place thereon by adhesive.

The container may comprise a hollow body shaped as a right circular cylinder. The label preferably extends completely around the periphery. It may be affixed directly to the container with adhesive. Alternatively the ends of the label may be arranged to overlap when the label is wrapped around the body, and the ends secured together, with adhesive.

It will be understood that the container is structurally complete without having the label applied since in subsequent large scale commercial production essentially identical containers will be manufactured and have printing applied directly to the polymeric side wall.

The label is pliable to enable it to be easily wrapped around the container body and to conform to the body shape, but at the same time it is rigid enough to resist wrinkling and creasing when handled e.g. when being applied to the container body. A sheet which is capable of being formed into a cylindrical sleeve and when so formed is able to stand on its end without collapsing, will be sure to have sufficient rigidity.

The polymeric sheet material of the label is of a thickness greater than that of typical plastic labels used on packaging containers in which in order to minimise costs the sheet material is made as thin as practically possible. More particularly, the sheet material of the label included in the container according to the invention has a thickness not less than about 0.15 mm. It is recommended that a thickness in the range of 0.18 mm to 0.60 mm, and preferably 0.20 mm to 0.50 mm, be used. Highly satisfactory results have been achieved with a sheet thickness in the range of 0.20 to 0.30 mm, namely 0.24 mm, and a sheet thickness of 0.48 mm has also proved acceptable, for containers of a cylindrical shape with a diameter in the range of 100 mm to 200 mm. Containers used for packaging paint fall within this size range, a typical paint container of 2.5 litre capacity having a diameter of about 150 mm, and a typical 5 litre paint container having a diameter of about 175 mm.

It will be appreciated that containers according to the invention are intended to be made in small numbers, mainly for proof purposes, and they are not intended for large scale commercial production of containers intended for packaging goods to be sold to the consumer. The method involved in making the container of the invention is time consuming and relatively expensive compared with normal commercial production techniques if the

costs of containers are compared on a one for one basis. However, when only a small number of sample containers are to be produced for proof purposes, significant economic advantage is obtained by the invention in view of the high cost of printing only a few containers using production equipment adapted to print directly onto the container wall.

Printing plates made from basic artwork, in accordance with conventional practice, are used to print the polymeric sheet of the label whilst in the flat. The printed label is then wrapped around the body of an unprinted but otherwise finished container body, and secured in place, such as by applying adhesive between the label and body, or between overlapping ends of the label. The label preferably covers substantially all of the container side wall. The completed container has an appearance which replicates that of a directly printed container sufficiently closely for proof purposes. For the subsequent commercial scale production of containers of that appearance, either the same printing plates as used for printing the proof label or other plates obtained using the same basic artwork, will be employed in the production machinery for printing the containers, and the same ink compositions as used for printing the proof labels will be used. The printing process may be facilitated by use of inks which are cured by exposure to ultra-violet radiation.

It is advantageous for the label sheet material has a colour substantially the same as or at least approximating closely to that of the container body. Where convenient essentially the same material may be used for the container body and the label sheet. However, some plastics materials used in container manufacture require pre-treatment before accepting ink, in which case it will be preferable to employ for the material of the label a different material which can be directly printed so that the need for the pre-treatment is obviated. It is important to use polymeric sheet for the label because other materials such as paper would influence the printing process so that the printed label will differ to the appearance obtained if the same inks are used on a polymeric container.

In terms of modern production techniques the printing of a separate label and its manual handling and application to a separately formed container body are labour intensive and hence expensive operations. As explained above, however, the containers of the invention do allow an economic advantage to be obtained.

Claims

1. A container comprising a body with a cylindrical polymeric side wall, and a pre-printed label

covering said side wall, the body constituting a structurally complete container even in the absence of the label, the label comprising a flexible sheet of polymeric material at least 0.15mm in thickness and of sufficient strength to enable the label to be handled without crumpling, and the label being printed in substantially flat condition and being wrapped around the container body and secured in place thereon by adhesive.

2. A container according to claim 1, wherein the label extends around substantially the entire peripheral extent of the side wall.

3. A container according to claim 2, wherein the label covers substantially all of the surface of the side wall.

4. A container according to claim 1, 2 or 3, wherein the label consists of a sheet of such rigidity that it may be formed into a cylindrical sleeve capable of standing on end without collapsing.

5. A container according to any one of the preceding claims, wherein the sheet material of the label has a thickness in the range of 0.18 mm to 0.60 mm.

6. A container according to claim 5, wherein the thickness is in the range of 0.20 to 0.50 mm.

7. A container according to claim 6, wherein the thickness is in the range of 0.20 to 0.30 mm.

8. A container according to claim 7, wherein the thickness is substantially equal to 0.24 mm.

9. A container according to any one of the preceding claims wherein the colour of the sheet material of the label at least closely approximates to that of the polymeric wall portion.

10. A container according to any one of claims 1 to 13, wherein the label is printed with an ink composition cured by exposure to ultra violet radiation.

11. A container according to any one of the preceding claims wherein the container has the shape of a right circular cylinder with a diameter in the range of 100 mm to 200 mm.

12. A method of producing containers comprising the steps of preparing a printing plate from basic artwork, printing with said plate a flat sheet of flexible polymeric material to form a printed label, applying the printed label to a container made of plastics material to produce a container replicating the desired appearance of a printed container, and subsequently printing large numbers of plastics containers using printing plates prepared from said basic artwork and using the same ink compositions as used to print said label in the flat.



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. 4)
X	US-A-3 737 093 (AMBERG et al.) * Figure 1; column 3, line 56 - column 4, line 5; column 5, lines 27-39; column 7, lines 18-64 *	1-8, 11	B 65 D 25/36 B 65 C 3/06
A	---	12	
A	EP-A-0 122 106 (SHEPHERD) * Page 3, line 25 - page 4, line 1 *	9	
A	---		
A	WORLD PATENT INDEX, no. AN87-061130, Derwent Publications Ltd, London, GB; & JP-A-62 016 185 (TOMO) 24-01-1987	10	
A	---		
A	US-A-3 231 128 (KLEIN)		
A	---		
A	FR-A-1 347 102 (SEPROSY)		

The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int. Cl. 4)
			B 65 D
Place of search		Date of completion of the search	Examiner
THE HAGUE		27-02-1990	DEUTSCH J.P.M.
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			