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EUROPEAN PATENT APPLICATION

21 Application number: 87830060.7

51 Int. Cl.³: B 65 D 53/00
 B 65 D 41/00

22 Date of filing: 19.02.87

30 Priority: 24.02.86 IT 4768086

43 Date of publication of application:
 02.09.87 Bulletin 87/36

84 Designated Contracting States:
 AT BE CH DE ES FR GB GR LI LU NL SE

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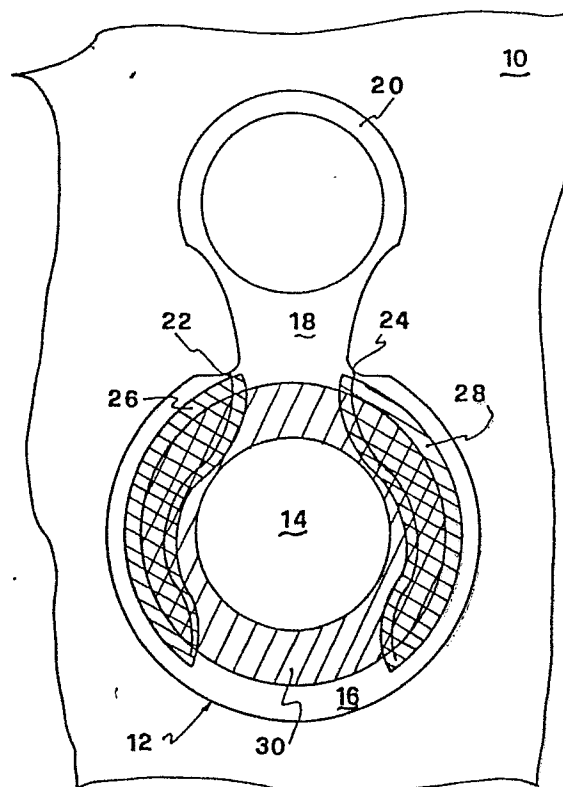
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54 A method for carrying out reserve areas without the adhesion of the sealant, particularly in bottle caps.

57 A method for carrying out reserve areas without the adhesion of the sealant, particularly in bottle caps, comprising offset printing to reserved areas with lithographic ink, so as to lay down ink on the paint that guarantees the adhesion of the sealant, thus to prevent the above named adhesion in the reserved areas, when the sealant is subsequently laid down, for instance, through a nozzle and by centrifuging.



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A method for carrying out reserve areas without the adhesion of the sealant, particularly in bottle caps.

The present invention refers to a method for carrying out reserve areas without the adhesion, particularly reserved areas of a metal cap for the closure of bottles, areas in which, upon the laying down of the sealant, the adhesion of the latter with the metal does not take
5 place.

Bottle caps of the tear-off type are available on the market, as well as easy to open caps for large mouth bottles, in which a central top panel, which covers the bottle mouth rim, is connected with a lateral
10 band or skirt which surrounds the mouth of the neck of the bottle and is bent under the edge of the neck in order to secure the cap.

For the opening of such caps, a tear-off tab is provided, which extends from the top panel through the lateral band, continuing
15 toward the outside from a limited area of the lateral band itself, and is bounded by one or more score lines, while an angular sealant gasket is interposed between the mouth of the bottle, on the one hand, and the top panel, as well as the lateral band, on the other hand.

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The angular sealant gasket acts as a sealing element between the bottle and cap and is glued to the undersurface of the central panel and/or to the inner surface of the lateral skirt and the convenience of the tear-off opening of the cap depends on the shape and position
25 of the score lines and the shape of the sealant gasket.

Furthermore, it has been observed that the convenience of the tear-off opening of the cap can be improved in such a way so that the sealant adheres only to a somewhat limited area of its contact
30 surface with the metal.

According to the known art, the adhesion of the sealant to the metal

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is obtained so far by starting from a metal plate, which is generally made from aluminium or an alloy thereof, and from which the caps are to be obtained, and subjecting such a metal plate to a last painting step, in which the plate itself is coated with a paint which offers
5 adhesion to the sealant. During the subsequent forming of the cap, when it has already taken on its final shape, a certain amount of liquid sealant is laid down by means of a nozzle on the inner edge of the cap, while it is rotating, through an application of the sealant by centrifuging. Then the sealant is put into an oven to solidify and
10 the cap is ready to be applied on to the bottle.

In order to cause a selective gluing of the sealant to the metal, i.e. a gluing limited to some areas only, so far the technique has been used consisting of a partial application of such a paint which
15 offers adhesion to the sealant. That is, in other words, one has tried to apply such a paint only to the area in which the adhesion is desired.

However this technique does not provide satisfactory results due to
20 the limited accuracy of the positioning possible with the automatic painting machines of the working conveyers. Therefore, in practical embodiments, the paint appears to be arranged in perpendicular stripes with respect to the direction of motion of the plate, the painting being carried out by means of only partially active painting
25 rollers. However, such an arrangement does not allow substantial improvements to be achieved, since the configuration of the optimized areas of reserve, at which the adhesion is to be prevented, is somewhat complex, as it will be better clarified in the following, with reference to the accompanying drawing.

30

According to the present invention, it has been surprisingly discovered that, by coating with an offset printing ink the above named paint, it loses its sealant adhesive property.

35 Therefore, during the usual process for manufacturing and forming the caps, and exactly after the painting with a paint which offers adhesion to the sealant and before blanking and bending, the working

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plate, from which the caps must be carried out, is subjected to a further kind of printing which, applied either previously or subsequently, or even contemporaneously to the printing of the labels and writings on the outer side of the cap itself, causes the laying down
5 of a lithographic ink in the reserve areas, in which the adhesion of the sealant must not take place, on the inner side, to which the sealant must then be applied.

In this way the marks of the reserved areas are carried out by taking
10 full advantage of the high accuracy allowed by the offset printing method, at an extremely low cost and by means of an operation very similar to the one already carried out for the embodiment of the labels and writings on the cap.

15 The method for carrying out reserve areas without the adhesion of the sealant in bottle caps according to the present invention will be now described more in detail, with reference to the accompanying drawing,

the sole figure of which shows in a schematic way a partial plan view
20 of the plate, starting from when the caps are carried out.

With reference to the accompanying drawing, there is shown a rolling plate 10, as it appears during the cap manufacturing, in a condition in which the plate 10 has already been coated, on its upper side,
25 i.e. that one facing towards a person looking at the drawing, by an even coat of paint which has a strong adhesion to the sealant which will be used later.

The outline of a cap developed on a plane is shown by a line 12 and
30 along this line 12 the plate 10 will then be cut or sheared in order to separate the blanks of the various caps which are obtained from each plate.

At the end of the manufacturing process, each cap will comprise a top
35 panel 14, a lateral skirt or band 16, which completely surrounds top panel 14, and a tear-off tab 18, which originates from the lateral skirt 16 and terminates in a ring 20 designed to make it easier for

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the user to hold the tab 18 during the tear-off opening.

Furthermore, on the plate 10 two score lines 22, 24 will be formed, carried out by marking the plate 10 itself in a known manner.

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When the homogeneous coat of paint, which shows adhesion to the sealant, has been laid down, in two reserved areas, here shown by hatched areas 26 and 28, according to the present invention a lithographic ink is subsequently laid down through an offset printing 10 step.

After the application of the lithographic ink, it can be noticed that the paint, in the reserved areas 26 and 28, no longer shows adhesion to the sealant, since it has been covered by the lithographic ink.

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According to the example hereinbefore described, the reserved areas 26 and 28 each have approximately the shape of a part of a circle ring, but it is obvious that the shape thereof can be changed according to the needs in order to obtain other shapes of the reserved 20 areas themselves.

Various types of ink can be used, and the term "ink" here is intended to mean generically any material useful to be laid down by any method of printing: in particular it has been verified that a suitable "ink" 25 comprises the usual base or support base for lithographic ink alone. That is, a suitable "ink" is the support base without the pigment, which, added or anyway joined to the support base, forms the coloured lithographic ink.

30 Therefore, in general any material able to coat the above named paint or anyway inhibit its adhesion to the sealant is useful and is here, called by the term "ink".

Furthermore, the printing of the reserved areas is preferably carried 35 out at the same time the printing of the labels and writings is carried out on the outer side of the plate 10, opposite to the one in which the reserved areas themselves are printed. However, it can be

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alternatively provided for such printings to be carried out at different times rather than at the same time.

Subsequently the cap is cut, bent and formed: then the sealant, 5 itself, is sprayed inside it by means of a nozzle and centrifuged in a known way. The dried sealant will extend approximately to the hatched area 30 in the drawing and will be glued to the metal of the plate 10 in all the area 30, except the reserved areas 26 and 28.

10 In such a way, the opening of the cap, once the latter has been applied to a bottle or similar container, will be made significantly easier, since the sealant will be first lifted and detached from the glass of the bottle at the tab 18, then will be free to slip under the lateral skirt 16 in the reserved areas and will be at last, 15 definitively detached from the glass and firmly held to the metal of the gluing area opposite the tab 18, so as not to be able to separate itself from the metal.

It is obvious that numerous and different changes and modifications 20 can be performed by the skilled in the art on the practical embodiment of the method of the present invention hereinbefore described, without departing from its scope. It is intended therefore that all these changes and modifications are encompassed in the field of this invention.

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Claims

1. A method for carrying out reserve areas without the adhesion of the sealant, particularly in bottle caps, characterized in that, after the usual step of the painting of the plate, from which the blanks of the caps will be carried out, with a paint which offers
5 adhesion to the sealant, on the plate, itself, a printing is made which lays down a coat of ink over the coat of paint only in reserved areas, in which it is desired that the sealant does not adhere to the metal of the plate.
- 10 2. A method according to claim 1, characterized in that said ink is laid down by means of an offset printing.
3. A method according to claim 1 or 2, characterized in that said ink is a lithographic ink.
- 15 4. A method according to any one of the preceding claims, characterized in that said reserved areas approximatively are parts of a circle ring in shape.
- 20 5. A method according to any one of the preceding claims, characterized in that said printing of the reserved areas is carried out contemporaneously to the printing of the labels and writings on the side of the plate other than the side on which said reserved areas are provided.
- 25 6. A method according to any one of the claims 1 to 4, characterized in that said printing of the reserved areas is carried out previously of the printing of the labels and writings on the side of the plate other than the side on which said reserved areas are provided.
- 30 7. A method according to any one of the claims 1 to 4, characterized in that said printing of the reserved areas is carried out subsequently to the printing of the labels and writings on the side of the plate other than the side on which said reserved areas are provided.

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