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PATENT SPECIFICATION

DRAWINGS ATTACHED

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Inventor: BRYAN GORDON HOWELL

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COMPLETE SPECIFICATION

Improvements in or relating to Applicator Type Containers

We, THE METAL BOX COMPANY LIMITED, a Company Incorporated under the laws of Great Britain, of 37, Baker Street, London, W.1, England, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to an applicator type container for flowable materials such as liquids or creams and which is of the kind fitted with a pad to effect spreading of material delivered thereto from the container.

It is a main object of the present invention to provide an applicator type container of the kind mentioned above the pad for which can be secured in a position by automatic means and without the use of adhesives.

According to the invention there is provided an applicator type container for flowable materials such as liquids or creams, wherein a soft flexible pad extends outwards from a member which is located at the outer end of and effects communication with the interior of a neck formed on the container, the pad being retained in position by a thin metal element integral with and intumed towards said member thereby to trap and press a peripheral portion of the pad against said member.

Further according to the invention there is provided a method of securing a soft flexible pad to a container for flowable material such as liquids or creams, by disposing the pad on a member integral with or adapted to be fitted to and to effect communication with the interior of the outer end of the neck of the container with one end of the pad in a thin metal element integral with and extending from said member, and inturning said element towards said member thereby to trap and press a peripheral portion of the pad against said member.

In order that the invention may be clearly understood some embodiments thereof will now be described, by way of example, with reference to the drawings accompanying

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the Provisional Specification, in which:—

Fig. 1 is a section of the upper end of a collapsible tube having the invention applied thereto,

Fig. 2 is a section through a ferrule having an applicator pad fitted thereto, the ferrule being adapted to be fitted to the neck of a bottle or similar container, and

Fig. 3 illustrates a method by which an applicator pad is applied to a ferrule as illustrated in Fig. 2.

Referring to Fig. 1 the applicator type container comprises a collapsible tube 1 formed from extruded aluminium, the tube as is customary being provided with a neck 2. A member 3 located at the outer end of the neck 2 is integral therewith and is provided with an aperture 4 which extends through the member 3 to effect communication with the interior of the neck.

A soft flexible pad 5 extends outwards from the member 3 and is retained in position by a thin metal element 6 which is intumed towards the member 3 thereby to trap and press a peripheral portion of the pad 5 against the member 3. As illustrated in the drawing, the element 6 is of annular form and is intumed to form a curl in which a part 7 of the pad 5 is trapped while a further portion 8 of the pad is pressed against the member 3 by an exterior portion of the curl.

The pad 5 may be made of any suitable soft flexible material which may be of an absorbent character so that material from the container passing through the aperture 4 is soaked up by the pad and can be applied thereby to a surface by rubbing the pad over the surface while pressing the pad against the surface. Suitable forms of absorbent material are foam or sponge rubber or other foam material such as polyurethane. Alternatively, the pad may be formed from a non-cellular or other non-absorbent material and when formed of such material the pad is provided with a hole which extends therethrough in alignment with the aperture 4. The hole and

aperture are sealed by a plug 9 which extends therethrough and which is integral with, or is secured to, a cap 10 arranged to be fitted to the exterior of the neck 2. As illustrated in Fig. 1 the cap 10 is provided with internal screw threads for engagement by external threads formed on the neck 2. Preferably the plug 9 tapers from the crown of the cap towards the free end thereof which extends through the aperture 4.

Fig. 2 illustrates an alternative embodiment of the invention in which the pad 5 is fitted to a thin metal ferrule 11, the ferrule being adapted to be fitted to the neck 12 of a bottle 13, for example to a bottle made from a plastics material, the ferrule being inserted into the neck frictionally to engage the sides thereof in a manner such as to secure the ferrule against unintentional displacement from the neck. The inner end of the ferrule is provided with an opening to communicate with the interior of the bottle.

The ferrule 11 is provided with a shoulder 14 which is engageable with the rim of the mouth of the bottle neck 12 and the pad 5 extends outwards from the shoulder 14 and is retained in position relative thereto by an intumed element 6 which is integral with the shoulder 14. As can be seen from Fig. 2, the pad 5 is trapped by the curl 6 in the manner described above with reference to Fig. 1.

In some instances the flowable material in the container is of a character which may evaporate during storage and, if desired, to prevent such evaporation a sealing disc 15 may be arranged to extend across the through-way of the ferrule and to be located between the shoulder 14 and the pad 5. The sealing disc is impermeable and must therefore be pierced before the applicator can be put into use. Piercing of the sealing disc 15 may be effected by pressing a piercing element through the pad 5 and sealing disc 15. In one embodiment of the invention the applicator is supplied fitted with a piercing element 16 which is removably inserted into the pad through the outer face 17 thereof to extend, as illustrated in Fig. 2, into close proximity with the sealing disc 15. When it is desired to put the applicator into use pressure is exerted on the upper surface 17 of the pad and on the piercing element 16 so that the pad is compressed axially until the piercing element is forced through the sealing disc 15 thus effecting piercing thereof to permit flowable material from the container to pass into the pad 5 following removal of the piercing element 16 which can be effected by gripping of the head 18 of the piercing element and withdrawing the element from the pad.

When the pad 5 is first assembled with the container or ferrule, as the case may be, the element 6 is not curled as shown in Figs. 1 and 2, but extends outwards from the member 3, or shoulder 14, in the manner illustrated in

Fig. 3. While it is preferred that the element 6 consists of an annulus to form a continuous curl, it may, if desired, be formed by a plurality of members spaced apart around the pad 5. Overturning of the element 6 may be effected in any desired manner, for example by spinning, or, if desired, it may be effected by the method illustrated in Fig. 3. This figure illustrates the method of securing the pad 5 to a ferrule 11 and the ferrule is placed in a holder 19 secured to a table 20 beneath a curling tool 21 which is supported for vertical reciprocation towards and away from the holder 19.

Following the placing of the ferrule in the holder 19, the pad 5, which is a cylindrical prism the diameter of which is approximately equal to the diameter of the annular element 6, and which preferably has a diameter slightly greater than that of the element 6, is placed into the element 6 to rest on the shoulder 14 or, if as illustrated in Fig. 3 a sealing disc 15 is employed, to rest on the sealing disc 15 which is placed in the ferrule in precedence to the pad 5. The curling tool 21 is now moved downwards and during the downward movement thereof the upper portion of the pad 5 is engaged in a recess 22 which causes the upper portion of the pad 5 to be reduced in cross-section due to compression thereof. The reduction in cross-section of the upper portion of pad 5 causes the pad portion which is adjacent to the shoulder 14 to diverge away therefrom, as indicated by the reference numeral 23, thereby presenting a peripheral portion of the pad which is directed away from the upstanding element 6 so that, as the element 6 is intumed towards the shoulder 14, the edge portion 24 of the element 6 presses into the sloping side portion 23 of the pad and so causes the portion 7 of the pad to be trapped in the curl. The length of the element 6 is so chosen that the portion 8 of the pad 5 is pressed against the shoulder 14 by an exterior portion of the curl when the curl-forming operation is completed.

Overturning of the element 6 to effect the formation of the curl is effected by an annular recess 25 in the curling tool, the arrangement being, as shown in Fig. 3, such that as the tool 21 approaches the holder 19, the edge of the element 6 is engaged by the curved portion of the recess 25 so that the continued downward movement of the tool 21 causes the element 6 to be intumed towards the shoulder 14.

WHAT WE CLAIM IS:—

1. An applicator type container for flowable materials such as liquids or creams, wherein a soft flexible pad extends outwards from a member which is located at the outer end of and effects communication with the interior of a neck formed on the container, the pad being retained in position by a thin metal element integral with and intumed towards



aperture are sealed by a plug 9 which extends therethrough and which is integral with, or is secured to, a cap 10 arranged to be fitted to the exterior of the neck 2. As illustrated in Fig. 1 the cap 10 is provided with internal screw threads for engagement by external threads formed on the neck 2. Preferably the plug 9 tapers from the crown of the cap towards the free end thereof which extends through the aperture 4.

Fig. 2 illustrates an alternative embodiment of the invention in which the pad 5 is fitted to a thin metal ferrule 11, the ferrule being adapted to be fitted to the neck 12 of a bottle 13, for example to a bottle made from a plastics material, the ferrule being inserted into the neck frictionally to engage the sides thereof in a manner such as to secure the ferrule against unintentional displacement from the neck. The inner end of the ferrule is provided with an opening to communicate with the interior of the bottle.

The ferrule 11 is provided with a shoulder 14 which is engageable with the rim of the mouth of the bottle neck 12 and the pad 5 extends outwards from the shoulder 14 and is retained in position relative thereto by an inturned element 6 which is integral with the shoulder 14. As can be seen from Fig. 2, the pad 5 is trapped by the curl 6 in the manner described above with reference to Fig. 1.

In some instances the flowable material in the container is of a character which may evaporate during storage and, if desired, to prevent such evaporation a sealing disc 15 may be arranged to extend across the through-way of the ferrule and to be located between the shoulder 14 and the pad 5. The sealing disc is imperforate and must therefore be pierced before the applicator can be put into use. Piercing of the sealing disc 15 may be effected by pressing a piercing element through the pad 5 and sealing disc 15. In one embodiment of the invention the applicator is supplied fitted with a piercing element 16 which is removably inserted into the pad through the outer face 17 thereof to extend, as illustrated in Fig. 2, into close proximity with the sealing disc 15. When it is desired to put the applicator into use pressure is exerted on the upper surface 17 of the pad and on the piercing element 16 so that the pad is compressed axially until the piercing element is forced through the sealing disc 15 thus effecting piercing thereof to permit flowable material from the container to pass into the pad 5 following removal of the piercing element 16 which can be effected by gripping of the head 18 of the piercing element and withdrawing the element from the pad.

When the pad 5 is first assembled with the container or ferrule, as the case may be, the element 6 is not curled as shown in Figs. 1 and 2, but extends outwards from the member 3, or shoulder 14, in the manner illustrated in

Fig. 3. While it is preferred that the element 6 consists of an annulus to form a continuous curl, it may, if desired, be formed by a plurality of members spaced apart around the pad 5. Overturning of the element 6 may be effected in any desired manner, for example by spinning, or, if desired, it may be effected by the method illustrated in Fig. 3. This figure illustrates the method of securing the pad 5 to a ferrule 11 and the ferrule is placed in a holder 19 secured to a table 20 beneath a curling tool 21 which is supported for vertical reciprocation towards and away from the holder 19.

Following the placing of the ferrule in the holder 19, the pad 5, which is a cylindrical prism the diameter of which is approximately equal to the diameter of the annular element 6, and which preferably has a diameter slightly greater than that of the element 6, is placed into the element 6 to rest on the shoulder 14 or, if as illustrated in Fig. 3 a sealing disc 15 is employed, to rest on the sealing disc 15 which is placed in the ferrule in precedence to the pad 5. The curling tool 21 is now moved downwards and during the downward movement thereof the upper portion of the pad 5 is engaged in a recess 22 which causes the upper portion of the pad 5 to be reduced in cross-section due to compression thereof. The reduction in cross-section of the upper portion of pad 5 causes the pad portion which is adjacent to the shoulder 14 to diverge away therefrom, as indicated by the reference numeral 23, thereby presenting a peripheral portion of the pad which is directed away from the upstanding element 6 so that, as the element 6 is inturned towards the shoulder 14, the edge portion 24 of the element 6 presses into the sloping side portion 23 of the pad and so causes the portion 7 of the pad to be trapped in the curl. The length of the element 6 is so chosen that the portion 8 of the pad 5 is pressed against the shoulder 14 by an exterior portion of the curl when the curl-forming operation is completed.

Overturning of the element 6 to effect the formation of the curl is effected by an annular recess 25 in the curling tool, the arrangement being, as shown in Fig. 3, such that as the tool 21 approaches the holder 19, the edge of the element 6 is engaged by the curved portion of the recess 25 so that the continued downward movement of the tool 21 causes the element 6 to be inturned towards the shoulder 14.

WHAT WE CLAIM IS:—

1. An applicator type container for flowable materials such as liquids or creams, wherein a soft flexible pad extends outwards from a member which is located at the outer end of and effects communication with the interior of a neck formed on the container, the pad being retained in position by a thin metal element integral with and inturned towards

said member thereby to trap and press a peripheral portion of the pad against said member.

2. An applicator according to Claim 1, wherein the metal element is of annular form and when intumed forms a curl in which a part of the pad is trapped while a further part of the pad is pressed against said member by an exterior portion of the curl.
3. An applicator according to Claim 1 or Claim 2, wherein the container is a collapsible tube and said member is integral with the neck thereof.
4. An applicator according to any of Claims 1 to 3, wherein communication between said member and the interior of the neck is effected by an aperture extending through the member, the pad is made of non-absorbent material and is provided with a hole which extends therethrough in alignment with said aperture, and the hole and aperture are sealed by a plug which extends therethrough and is integral with or is secured to a cap arranged to enclose the pad and to be fitted to the exterior of said neck.
5. An applicator according to Claim 1 or Claim 2, wherein said member comprises a ferrule fitted to the neck of the container and having a shoulder from which the pad extends and with which said element is integral.
6. An applicator according to Claim 5, wherein a sealing disc extends across the throughway of the ferrule and is located between the shoulder and the pad.
7. An applicator according to Claim 6, including a disc-piercing element removably inserted into the pad from the outer face thereof to extend into close proximity with the sealing disc whereby pressure exerted on the pad and piercing element will cause the piercing element to pierce the disc thereby to effect communication between the pad and the interior of said neck.

8. A method of securing a soft flexible pad to a container for flowable material such as liquids or creams, by disposing the pad on a member integral with or adapted to be fitted to and to effect communication with the interior of the outer end of the neck of the container with one end of the pad in a thin metal element integral with and extending from said member, and intuming said element towards said member thereby to trap and press a peripheral portion of the pad against said member.

9. The method according to Claim 8, wherein intuming of said element is effected by pressure applied thereto lengthwise of the pad while effecting a reduction of the cross-section of the pad portion remote from said member thereby to cause the pad portion adjacent to said member to diverge away therefrom prior to engagement of said pad portion by said element on intuming thereof.

10. The method according to Claim 8 or Claim 9, wherein overturning of said element forms the element into a curl with a portion of the pad located in the curl and a further portion pressed against said member by an exterior portion of the curl.

11. An applicator type container for flowable materials such as liquids or creams, substantially as herein described with reference to and as illustrated by Fig. 1 or Fig. 2 of the drawings accompanying the Provisional Specification.

12. The method of securing a soft flexible pad to a container for flowable material such as liquids or creams substantially as herein described with reference to the drawings accompanying the Provisional Specification.

PAGE, WHITE & FARRER,
Chartered Patent Agents,
27, Chancery Lane, London, W.C.2.
Agents for the Applicants.

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