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PATENT SPECIFICATION

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(54) IMPROVEMENTS IN OR RELATING TO A CLOSURE FOR A CONTAINER

(71) We, DART INDUSTRIES INC, a company organised and existing under the Laws of the State of Delaware, United States of America, of 8480 Beverly Boulevard, Los Angeles, California 90048, United States of America, 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 a closure for a container.

According to this invention there is provided a combination of a container and a closure for the container, said closure comprising a principal closing wall, sealing means depending from said wall to facilitate fitting of said closure over the mouth of the container, and a flange the outermost extremity of which is substantially elliptical, therebeing at least one aperture in said wall located proximate the major axis of said substantially elliptical extremity, the combination being such that the closure fits over the mouth of the container.

In order that the invention may be more readily understood and so that further features thereof may be appreciated the invention will now be described by way of example and with reference to the accompanying drawings in which:

Figure 1 is a perspective view of a closure forming part of a combination in accordance with the invention.

Figure 2 is a sectional view of the closure of Figure 1 taken along the line 2-2 of Figure 3;

Figure 3 is a top plan view of the closure of Figure 1;

Figure 4 is a bottom plan view of the closure of Figure 1;

Figure 5 is an enlarged cross-sectional view of the closure taken along line 5-5 of Figure 3;

Figure 6 is a part cut-away side elevational view of the closure fitted over the mouth of a container and provided with a conventional seal; and

Figure 7 is an enlarged cross-section of the circled portion 7 of Figure 6.

Referring to Figures 1 and 5 a closure 10 comprises a downwardly extending skirt 14 for engagement with the neck of a container or vessel, a circular connecting wall 16 and up-

wardly extending wall 18.

The closure 10 also includes a boss 20 that protrudes upwardly from the connecting wall 16 immediately adjacent and in contact with the upwardly extending wall 18, the height of the boss 20 being approximately half that of the wall 18. The boss 20 has an upper wall 22 having an opening which defines the mouth of an aperture 24 extending downwardly through the boss 20 to communicate with the lower side of the connecting wall 16. The connecting wall 16 further includes one other aperture 26 adjacent the wall 18 and at a point diametrically opposite the boss 20.

The downwardly extending skirt 14 is capable of being applied to a rim 28 (see Figure 7) of a vessel 12 by slightly stretching the skirt 14 at any position over the rim 28, and then applying sliding thumb pressure round the periphery of the wall 18 to urge the closure 10 into a position where the skirt 14 and the rim 28 are in hermetic engagement.

The upwardly extending wall 18 is adapted to receive a conventional unperforated seal or closure 29 which includes a sealing groove defined by an annular wall 32, a first wall 30 extending downwardly from the outer periphery of the wall 32 and a second wall 34 extending downwardly from the inner periphery of the wall 32 (Figure 7) and is applied to the wall 18 in the same fashion as described above. Accordingly, when a seal 29, a vessel 12 and a closure 10 are used in combination, the contents of the vessel 12 will not be able to escape.

In addition the closure 10 incorporates a radially outwardly extending flange 36 of uniform section at the lower terminus or extremity of skirt 14. As is particularly evident from Figures 3 and 4, the flange 36 is elliptically shaped, the apertures 24 and 26 in the boss 20 and connecting wall 16 respectively being located approximately along the major axis thereof. The minor axis of the elliptical flange is equal to length to the diameter of the skirt 14 and thus the lower extremity of the skirt may be found to have two opposed flat portions 38 at the ends of the minor axis.

The elliptical shape of the flange 36 and the diametrical positioning of the apertures 24, 26 render the vessel 12 upon which the closure

10 is placed virtually spill proof. If the vessel is dropped in all likelihood it will become horizontally disposed. If this is the case, the vessel 12 will tend to roll due to the elliptical shape of flanges 36 to a final resting position in which one of the flat portions 38 is in a lowermost position. The apertures 24, 26 will thus be an elevated position and will normally be above the level of the contents of the vessel. If, however, the level of the contents lies above the apertures 24, 26 the size thereof is of an order that surface tension will tend to create a plugging effect thus minimizing spillage.

The closure 10 described above is capable of formation by known procedures, such as compression, vacuum, injection, and blow moulding or otherwise. The material from which the seal is formed should be inert, odourless, washable, capable of sterilization, and further should be yieldable and not subject to breakage or comminution by the teeth or mouth of a user as would be the case with glass for example. A plastics material of the locally deformable type such as polyethylene or vinyl is preferable since such materials are suitable for mouth introduction.

The closure 10 described above is intended to be used, in combination with a container for liquids, by a young child. In particular it is envisaged that containers fitted with closures of the type described will be given to infants to ease the transition between sucking and drinking proper, the closures requiring a combination of sucking and drinking if liquid is to be obtained by the user. It will be appreciated that, when being used by infants, the containers will frequently be dropped or knocked over. However, the provision of elliptical flanges round the periphery of the closures will serve to orient the knocked over containers in such a way that the apertures will be in an elevated position and in this way it is possible to keep spillage to a minimum.

WHAT WE CLAIM IS:—

1. A combination of a container and a closure for the container, said closure comprising a principal closing wall, sealing means depending from said wall to facilitate fitting of said closure over the mouth of the container, and a flange the outermost extremity of which is substantially elliptical, there being at least one aperture in said wall located proximate the major axis of said substantially elliptical extremity, the combination being such that the closure fits over the mouth of the container.

2. A combination according to Claim 1 wherein there are two apertures in said wall located proximate the major axis of said substantially elliptical extremity.

3. A combination according to Claim 2 wherein said apertures are diametrically opposed

from one another and are each located adjacent the periphery of said wall.

4. A combination according to Claim 1, Claim 2 or Claim 3 wherein an upwardly extending wall is provided adjacent the periphery of said principal closing wall.

5. A combination according to Claim 4 wherein a boss projects upwardly from said principal closing wall and said at least one aperture extends through said boss.

6. A combination according to Claim 5 wherein the height of said boss is approximately half the height of said upwardly extending wall.

7. A combination according to any one of the preceding claims wherein said principal closing wall is disc shaped.

8. A combination according to any one of the preceding claims wherein said sealing means comprises a peripheral skirt depending from said principal closing wall.

9. A combination according to any one of the preceding claims wherein said flange extends outwardly from the lower edge of said sealing means.

10. A combination according to any one of the preceding claims wherein sections of the flange taken parallel to the plane of the ellipse are substantially uniform.

11. A combination according to any one of the preceding claims wherein the container and closure are formed of a resilient plastics material.

12. A combination according to any one of the preceding claims said sealing means of the closure engaging a rim, or lip of the container thereby to locate the closure releasably in position over the mouth of the container.

13. A combination according to Claim 4 or any claim dependent thereon in combination with a seal which engages said upwardly extending wall.

14. A combination of a container and a closure substantially as herein described with reference to and as illustrated in the accompanying drawings.

15. A combination of a closure, a seal and a container substantially as herein described with reference to and as illustrated in the accompanying drawings.

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10 is placed virtually spill proof. If the vessel is dropped in all likelihood it will become horizontally disposed. If this is the case, the vessel 12 will tend to roll due to the elliptical shape of flanges 36 to a final resting position in which one of the flat portions 38 is in a lowermost position. The apertures 24, 26 will thus be an elevated position and will normally be above the level of the contents of the vessel. If, however, the level of the contents lies above the apertures 24, 26 the size thereof is of an order that surface tension will tend to create a plugging effect thus minimizing spillage.

The closure 10 described above is capable of formation by known procedures, such as compression, vacuum, injection, and blow moulding or otherwise. The material from which the seal is formed should be inert, odourless, washable, capable of sterilization, and further should be yieldable and not subject to breakage or comminution by the teeth or mouth of a user as would be the case with glass for example. A plastics material of the locally deformable type such as polyethylene or vinyl is preferable since such materials are suitable for mouth introduction.

The closure 10 described above is intended to be used, in combination with a container for liquids, by a young child. In particular it is envisaged that containers fitted with closures of the type described will be given to infants to ease the transition between sucking and drinking proper, the closures requiring a combination of sucking and drinking if liquid is to be obtained by the user. It will be appreciated that, when being used by infants, the containers will frequently be dropped or knocked over. However, the provision of elliptical flanges round the periphery of the closures will serve to orient the knocked over containers in such a way that the apertures will be in an elevated position and in this way it is possible to keep spillage to a minimum.

WHAT WE CLAIM IS:—

1. A combination of a container and a closure for the container, said closure comprising a principal closing wall, sealing means depending from said wall to facilitate fitting of said closure over the mouth of the container, and a flange the outermost extremity of which is substantially elliptical, there being at least one aperture in said wall located proximate the major axis of said substantially elliptical extremity, the combination being such that the closure fits over the mouth of the container.

2. A combination according to Claim 1 wherein there are two apertures in said wall located proximate the major axis of said substantially elliptical extremity.

3. A combination according to Claim 2 wherein said apertures are diametrically opposed

from one another and are each located adjacent the periphery of said wall.

4. A combination according to Claim 1, Claim 2 or Claim 3 wherein an upwardly extending wall is provided adjacent the periphery of said principal closing wall.

5. A combination according to Claim 4 wherein a boss projects upwardly from said principal closing wall and said at least one aperture extends through said boss.

6. A combination according to Claim 5 wherein the height of said boss is approximately half the height of said upwardly extending wall.

7. A combination according to any one of the preceding claims wherein said principal closing wall is disc shaped.

8. A combination according to any one of the preceding claims wherein said sealing means comprises a peripheral skirt depending from said principal closing wall.

9. A combination according to any one of the preceding claims wherein said flange extends outwardly from the lower edge of said sealing means.

10. A combination according to any one of the preceding claims wherein sections of the flange taken parallel to the plane of the ellipse are substantially uniform.

11. A combination according to any one of the preceding claims wherein the container and closure are formed of a resilient plastics material.

12. A combination according to any one of the preceding claims said sealing means of the closure engaging a rim, or lip of the container thereby to locate the closure releasably in position over the mouth of the container.

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