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CONTAINER LID WITH STOPPER**Field Of Technology**

The present invention relates to a container lid. More particularly the invention relates to a container lid for use in containers containing flowable materials like paint.

Background Art

There are several patents relating containers for flowable materials. One such patent US 5,921,448 granted to Steward Michael discloses a closure lid wherein the central region is provided with a slot and formed so that under the action of a weight of a paint applied to the central region, the slot expands and a flow of the paint can flow through the expanded slot. Further paint container lids are described in US Patent Nos. 3,715,982; 3,366,272; 3,899,107; 4,009,802; 4,034,901; 4,203,537; 4,893,723; 4,917,714; 4,949,884; 5,012,960; 5,388,715; 8,392,969 and 5,975,346. However there is need to provide a container lid which facilitates the introduction of colour paint pigments into the containers and thereafter to be sealed before the paint mixed with colour pigments is used.

In one prior art method of mixing base paint with colour pigments, the existing closure is removed. The colour pigment is introduced into the base paint held in the container. The closure (often damaged or dented after initial removal) is reapplied and the packaging (container) is placed in a mixing machine whereupon rotation/vibration of the container mixes the paint. This method has proven most unsatisfactory due to spillage of the paint during the mixing process and/or during the lid removal. The refixing of the closure lid into the container often does not create a tight seal resulting in spillage of paint during the transportation of the container containing the mixed paint to the customer's premises. The initial removal of the closure from the containers causes damages to the locking/sealing mechanism in both plastics or metal containers.

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In another prior art, upon selection of the preferred colour pigment a hole is punched at the closure or top panel of the container to allow the introduction of colour pigments into the base paint through the hole. After the introduction of the colour pigment, a plastics/rubber bung/plug is fitted onto the hole effectively resealing the container. The container is then placed in a vibrating/mixing machine to thoroughly mix the colour pigment in the base paint. This method is an improvement over the earlier described method in that the closure is not removed and only a small amount of paint may leak from the orifice/bung assembly.

- 10 However, the prior art methods suffer disadvantages. Additional apparatus or device is needed to perforate a hole/orifice in the closure lid. This entails an extra operation wherein occasionally the perforated part drops back into the container containing paint. Further, the second method also involves additional cost for the bung/plug. Another disadvantage is that the direction of flow of the flowable material from the container is not controllable.

Thus there is need to provide a closure lid and a container wherein the disadvantages are reduced or overcome.

Summary Of Invention

- A lid for a container comprising a body having a peripheral region engageable with a rim of the container so that said body is mountable on the container. The body is provided with a plug consisting of a shaft portion with a flange member, an annular collar spaced apart from the flange member by a neck portion and the plug being detachable from a peripheral edge demarcating an orifice upon the plug being removed from the body. The detached plug is refittable onto the body by exertion of force on the plug such that the neck portion engages upon the peripheral edge of the body. The shaft portion is secured to the peripheral edge of the body by frangible lines of weakness. The plug and the body of the lid is formed as a one-piece element composed of an elastics materials. The shaft portion is preferably hollow. The annular collar is wedged shaped in vertical cross-section. The plug is disposed in a recessed portion of the body such that in

a moulded position the plug is below the surface level of the non-recessed portion of the body. A spout is provided to control the flow of the material from the container. The open ends are fittable to the orifice and to a circular lip provided on the plug.

5 Brief Description Of The Drawings

Figure 1 shows a cross-sectional view of the plug is in moulded position.

Figure 2 shows a cross-sectional view of the plug fitted into the closure.

Figure 3 shows a cross-sectional view of the plug in an recessed area in the closure lid with the plug in its moulded position.

- 10 Figure 4 shows a cross-sectional view of the plug in an recessed area in the closure lid with the plug in a fitted position.

Figure 5 shows a cross-sectional view of the plug in an off-center position in the closure lid.

Figure 6 shows a top view of the plug in a central position of the closure lid.

- 15 Figure 7 shows the use of a plug removal device to remove the plug from its moulded position.

Figure 8 shows a projected view of the plug as positioned in proportion to the container and closure.

Figure 9 shows the plug with an integral pull tab in it operational position.

- 20 Figure 10 shows the plug with an integral pull tab in its folded position.

Figure 11 and 12 shows an exploded view of the plug in its fitted/sealing position with the top profile being snap fastenable into a pouring spout.

Figure 13 and 14 shows an exploded view of the plug shown in Figure 11 in its moulded position.

Figure 15 and 16 shows a moulded plastic pouring spout snap fitted onto the created orifice with the detached plug snap fastened onto the pouring spout
5 creating an air tight/leak proof seal.

Figure 17 shows the plug detailing the annular snap fastenable section.

Detailed Description Of The Preferred Embodiment

Referring to Figure 1, there is shown a plug (10) in its moulded position in a closure lid (12) which is secureable to a container, usually a wide-mouthed
10 container. The plug (10) is cylindrical in shape with a circular flange (14) and a cylindrical shaft portion (16). The plug (10) is secured to the closure lid (12) by frangible lines of weakness (18) surrounding and formed along the shaft portion (16) of the plug (10). Spaced apart from the circular flange (14) is an annular collar (20) along the shaft portion (16). The shaft portion (16) can be a solid
15 portion or a hollow portion as shown in Figure 1.

The plug (10) is preferably positioned in a recessed portion (22) in the central region of the closure lid (12) (see Figures 3, 4, 5 and 8). This configuration allows the circular flange (14) of the plug (10) to be at the same planar level as the non-recessed portion of the closure lid (12). It would be appreciated that plug (10) can
20 be located at the mid portion of the closure or at a off-center of the closure lid (see Figure 5).

The plug (10) is removed from the closure lid (12) by twisting the plug along the longitudinal axis of the shaft portion (16) with one hand. Alternatively a spanner-like appliance (24), see Figure 7 is used to twist the plug (10) off the closure lid
25 (12). The spanner-like appliance (24) can be applied at the neck-portion (26) between the circular flange (14) and the annular collar (20) to remove the plug (10) from the closure lid (12).

In another embodiment a pull tab (32) is provided on the plug (see Figure 9 and 10).

Upon removal of the plug from the closure lid (12) a preferred colour pigment is introduced into the container through the orifice (30) created by the removal of the plug from the closure lid. The orifice is then closed by fitting the plug onto the orifice in the closure lid (12). The peripheral edge (28) of the closure lid (12) tightly engages upon the neck portion (26) of the shaft of the plug ensuring a tight seal. With the closure, the container is vibrated or rotated to provide a through mixing of the pigments and the base paint. It will be appreciated that other materials can also be introduced into the container.

It will be appreciated that the neck portion (26) of the plug is determined and configured to provide a tight fitting mating upon the orifice (30) which is co-operatively dimensioned and configured. The peripheral edge (28) of the closure lid is slightly malleable to allow the annular collar (20) which is of larger dimension than the dimension of the orifice (30). This configuration prevents the fitted plug (10) from being dislodged or dislocated from the closure lid (12).

Although in the embodiment described herein, the plug is cylindrical in shape, it can be appreciated other geometrical shapes of the plug, in particular the neck portion (26) can be equally adopted, a co-operative orifice (30) is then configured to receive the plug (10).

The placement of the moulded plug (10) in a recessed portion (22) of the closure lid (12) enables, firstly of the stacking of one container on top of another similar container and secondly prevents the accidental dislodgment of the plug (10) from the closure lid (12) (see Figures 4 and 5).

In the embodiment just described, the direction of flow of the paint or other flowable material from the container through the orifice (30) is not controllable to facilitate the controlled flow of material from the container a spout (34) is provided. The spout (34) comprises of an open ended tube. One end of the spout (34) includes a pair of annular flanges (36) adapted to snap fasteningly fit over the

peripheral edge (28) of the closure lid (12), (Figure 15). The other open end of the spout (34) includes a annular notch (38) at the terminal end. The spout (34) is preferably angular in shape.

5 The plug (10) includes a circular lip (40) dimensioned and configured to snap fasteningly accommodate the spout (34) at the annular notch (38), (see Figure 17). The spout can be fitted onto the plug (10) such that the open end is closed. The closing of the open end of the spout prevents the entry of foreign matter into the container.

10 It will be appreciated that the spout (34) can be detached from the container lid, and the plug (10) can be used to close back the orifice (30) as described earlier. A thread means can be provided on the plug so that the spout can be screwed onto it.

15 The assembly of the container, closure lid (12) and plug (10) can be used to pack other materials apart from paints. To remove the mixed paint, the closure lid (12) is opened by means known to the art and does not form part of this invention. The provision of frangible line weakness (18) in the plug serves as tamper-evident unauthorized removal of the plug from the container.

The Claims Defining The Invention Are As Follows

1. A lid for a container comprising a body having a peripheral region engageable with a rim of the container so that said body is mountable on the container characterized in that the body is provided with a plug (10) consisting of a shaft portion (16) with a flange member (14), an annular collar (20) spaced
5 apart from the flange by a neck portion (28) and the plug (10) being detachable from a peripheral edge (28) demarcating an orifice (30) upon the plug being removed from the body and wherein the detached plug is refittable onto the body by exertion of force on the plug (10) such that the
10 neck portion engages upon the peripheral edge of the body.
2. A lid for a container as claimed in Claim 1 wherein the shaft portion (16) is secured to the peripheral edge (28) of the body by frangible lines of weakness (18).
3. A lid for a container as claimed in Claim 1 wherein the plug (10) and the body
15 of the lid is formed as a one-piece element composed of an elastic material.
4. A lid for a container as claimed in Claim 1 wherein the shaft portion (16) is hollow.
5. A lid for a container as claimed in Claim 1 wherein the annular collar (20) is wedged shaped in vertical cross-section.
- 20 6. A lid for a container as claimed in Claim 1 wherein the plug is disposed in a recessed portion (22) of the body such that in a moulded position the plug (10) is below the surface level of the non-recessed portion of the body.
7. A lid for a container as claimed in Claim 1 wherein a spout (34) is provided which consists of a pair of annular flanges at one open end and a circular
25 notch (38) at the other open end, said annular flange (36) is dimensioned and configured to snap fasteningly fit onto the peripheral edge (28) of the lid



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and the circular notch (38) is adapted to fit over a circular lip (40) on the plug (10).

