CONTAINER WITH REPLACEABLE PLUG AND POURING SPOUT

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ABSTRACT

A lid for a paint can and the like, the lid having a circular aperture formed therein adjacent one edge. A removable plug is provided for closing the aperture formed in the lid. When it is desired to pour material from the container, the plug is removed from the aperture in the lid and a pouring agent is placed over the aperture.

3 Claims, 9 Drawing Figures
BACKGROUND OF THE INVENTION

I. Field of the Invention

The present invention relates generally to containers and pouring spouts therefor, and more specifically to a lid for paint cans and the like having a detachable plug and a pouring spout which may be used interchangeably.

II. Description of the Prior Art

In the prior art, various types of lids have been used for paint cans and like containers, but conventionally a detachable lid is pressed in an opening disposed on an end of the can and secured therein by the engagement of a downwardly projecting annular flange formed around the periphery of the lid with a corresponding annular flange secured within the periphery of the open end of the can.

When certain brands of paints are sold to the customer, it is necessary for the paint salesman to add coloring to the base paint contained in the can. In order to add the desired coloring, the salesman must first remove the lid by inserting a wrench or the like between the flange formed on the lid and the flange on the can opening and force the lid off the can. Once the coloring has been added, the lid is replaced over the can opening and hammered back in secure engagement therewith. The paint can is then vibrated for a period of time to thoroughly mix the coloring and the base paint.

When the user of the paint is ready to begin painting, the can lid must again be removed and the contents of the can thoroughly stirred. Due to the large size of many paint containers, the user may want to pour a small quantity of the paint into a smaller container, or if he intends to use a paint roller for applying the paint to the surface to be painted he must pour a portion of the contents of the can into a shallow pan and dip the roller into the pan. Pouring paint from a conventional paint can is a somewhat messy operation and invariably creates extra work for the user, since the paint drips down the side of the can, necessitating precautions to be taken to avoid dripping the paint on other articles.

SUMMARY OF THE INVENTION

The paint container of the present invention eliminates the need of removing the can lid during the color adding operation and the pouring operation by providing a paint can lid having a small aperture normally obturated by a removable plug and a detachable pouring spout interchangeable with the plug. A conventional paint can having the conventional press-on lid is provided. The can lid has a relatively small circular aperture, preferably formed adjacent the edge of the lid to facilitate pouring of the paint from the can.

A plug is provided for securing over the aperture. For that purpose, the plug is provided with securing means for cooperative engagement with securing means dependent from the aperture in the lid.

When it is desired to add color to the base paint, the plug is removed from the can lid and the coloring added through the aperture in the lid. The aperture is then closed by means of the plug, and the can vibrated to thoroughly mix the coloring with the base paint. When the user desires to use the contents of the can, he removes the plug from the lid and introduces a stirring rod through the aperture in the lid, thus eliminating the necessity of removing the whole lid.

When it is desired to pour paint from the can, a pouring spout is fastened over the aperture in the lid. The spout may be secured to the container lid over the circular aperture in the same manner as the plug that it replaces, thus eliminating the need to remove the can lid for pouring the contents thereof and eliminating much of the mess and inconvenience that is associated with prying the lid of the can, pouring paint from the can and hammering the lid back in place.

Thus, a container lid plug and pouring spout is provided for a conventional paint can and the like, requiring no modification of the can and only slight modification of the lid.

DESCRIPTION OF THE DRAWINGS

The description refers to the accompanying drawings wherein like reference characters refer to like parts throughout the several views, and in which:

FIG. 1 is a perspective view of a conventional can, such as a paint can, provided with an example of a removable lid plug according to the present invention, and of a pouring spout interchangeable with the plug;

FIG. 2 is a partial perspective exploded view of a portion of the can lid and the plug, showing the plug removed from the aperture in the lid;

FIG. 3 is a cross-sectional view of the plug shown in FIGS. 1 and 2;

FIG. 4 is a partial cross-sectional view of the can lid and plug, with the plug secured over the aperture formed in the can lid;

FIG. 5 is a partial cross-sectional view of the spout shown in FIG. 1;

FIG. 6 is a partial cross-sectional view of a modification of the can lid and plug assembly;

FIG. 7 is a partial side elevational view of a modification embodiment of the pouring spout with a portion broken away;

FIG. 8 is a cross-sectional view of a modification of the can lid and plug assembly; and

FIG. 9 is a cross-sectional view of a further modification of the invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to FIG. 1, a paint container, generally indicated at 10, includes a conventional paint can 12, having a handle 14 and a lid 16.

As best shown in FIG. 4, the paint can 12, which is generally cylindrically shaped and open at its top end, as shown at 22, includes an inwardly extending annular flange 18 secured to the can top circular edge 20 for securing the lid 16 over the top opening 22 of the can. In the example of can shown, the flange 18 is generally U-shaped forming an annular downwardly directed recess 24 adjacent the edge 20 of the can 12.

Referring to FIGS. 4 and 4, the lid 16 includes a generally flat circular central portion 28 provided with an integral upwardly projecting annular edge 26 connected to the central circular portion 28 by a generally S-shaped integral annular port 30 which, as indicated in FIG. 4, forms a generally U-shaped upwardly directed annular recess 32 and a generally U-shaped downwardly directed concentric annular portion 34 formed between the annular recess 32 and the edge 26 of the lid. As indicated in FIG. 4, the lid 16 may be placed over the opening 22 of the can 12 and secured thereto by pressing down the lid such that the downwardly projecting annular portion 34 thereof fits in the flange 18. The inner ridge 36 of the can flange 18 extends into the annular recess 32 in the lid, forming a tight press-fit between the S-shaped annular portion 30 of the lid 16 and the can flange 18, securing the lid 16 onto the top of the can 12 and obliterating the can opening 22.

When it is desired to remove the lid 16 from the can 12, a screwdriver or other similar tool is inserted between the peripheral edge 26 of the lid and the flange 18, rotating the screwdriver about the upper outer edge of the flange 18, thus forcing the lid upward and off the can 12.

To eliminate the necessity of removing the lid 16 from the can 12, for example for the purpose of adding coloring to a base paint contained therein or for pouring the contents from the can, the lid 16 is formed with a circular aperture 38 in its recessed central portion 28 for receiving either a plug 39 or a pouring spout 40. Preferably, the opening 38 is formed adjacent the end of the lid 16 to facilitate pouring of the contents from the can.

Means are provided for removably fastening the plug 39 over the aperture 38 which, in the example shown at FIGS. 2 and 4, include a pair of opposed radially directed slots 41 and 42 formed in the peripheral edge of the aperture 38. A pair of opposed arcuate flange portions 44 and 46 are formed in-
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Referring to FIGS. 2, 3 and 4, the plug 39 includes a generally flat, annular member 56, having a central circular cut-out portion or opening 58 formed therein. A pair of opposed tabs 60 and 62 integral with the annular member 56 extend downwardly and radially outwardly from the edge of the cut-out portion or opening 58 for engaging the arcuate flange members 44 and 46 formed on the lid so as to secure the plug 39 over the aperture 38. A generally flat circular member 64, secured as by welding, soldering, bonding or the like to the top surface of the annular member 56, closes the opening 58, thus completing the assembly of the plug 39. The circular member 64 of the plug is preferably formed with an elongated recess 68 therein for receiving the top of a screwdriver to tighten the plug 39 onto the lid 16. An annular gasket 70 is preferably secured to the bottom surface of the plug annular member 56 adjacent its outer edge for forming a tight seal between the plug 39 and the top surface of lid 16.

In order to secure the plug 39 to the lid 16 over the aperture 38 therein, the plug 39 is placed over the aperture 38 with each of the tabs 60 and 62 passing through each of the slots 41 and 42. A screwdriver tip is then inserted into the recess 68 to rotate the plug clockwise, displacing each tab 60 or 62 of the plug under an inclined flange portion 44 or 46 of the aperture 38. As the plug 39 is rotate clockwise, it is obvious that as a result of the inclined ramps formed by the flange portions 44 and 46 being engaged on their lower surface by the plug prongs 60 and 62, the plug 39 is drawn against the top surface of the central portion 28 of the lid 16, forming a leakproof seal between such top surface and the gasket 70, thus preventing the leakage of paint through the opening 38.

As shown in FIG. 4, the plug 39 is so constructed that no portion thereof projects above the peripheral edge 26 of the lid 16. Therefore, the plug 39 does not interfere with the stacking of a plurality of paint cans 10 on the top of one another. It is to be noted that in can constructions wherein the outer ridge of the flange 18 projects above the edge 26 of the lid, the plug 39 is so constructed that no portion thereof projects above such outer ridge of the can, also for the purpose of avoiding interference with a stable vertical stacking of the cans.

Referring to FIGS. 1 and 5, the pouring spout 40 provided for securing over the aperture 38 in the lid 16 to facilitate pouring contents from the can 12, includes a tapered tubular curved member 80 provided with a radially extending flange portion 82 formed on one end thereof secured by welding, soldering or the like to the top surface of an annular flat member 72 having a central opening 74 formed therein. A pair of opposed tabs 76 and 78 integral with the annular member 72 extend downwardly and radially outward from the opening 74 for engaging the peripheral flange portions 44 and 46 of the aperture 38 on the lid 16 to secure the pouring spout 40 on the lid over the aperture 38. An annular gasket 84 is preferably secured to the bottom surface of the annular member 72 adjacent its outer edge for forming a tight seal between the pouring spout 40 and the upper surface of the lid 16, and a breather tube 85 is preferably disposed within the tubular member 80 of the pouring spout.

When it is desired to pour paint from the container 10, the plug 39 is removed from the aperture 38 in the lid. The pouring spout 40 is positioned over the aperture 38 with the tabs 76-78 projecting through the slots 41 and 42. The pouring spout 40 is then rotated clockwise to secure it to the top of the lid 16. After the pouring spout 40 is secured to the lid 16, paint may be poured out of the can 12 without removing the lid 16. A cap 86 is provided for securing over the end of the spout 40 to reseal the can without removing the pouring spout and replacing the plug 39 over the aperture 38 in the lid.

Referring to FIGS. 6 and 7, a modification of the invention is shown wherein a circular aperture 90 in the can lid 16 is provided with an annular insert 92 having a threaded inner surface 94 registering with the opening 90 secured to the under surface of the lid 16, as by means of welding, soldering or the like, as shown at 96.

The plug 39 has a cylindrical body 98, formed with a radially extending flange 100, provided with external threads 102 for engaging the internal threads 94 of the insert member 92. As the plug 39 is screwed into the insert 92, the flange 100 of the plug engages the top surface of the lid 16 thus forming a seal therewith. An annular gasket 104 may be secured to the lower surface of the flange 100 adjacent its periphery to aid in the sealing with the top surface of the lid 16. An elongated recess 106 is formed in the top surface of the plug for receiving a screwdriver tip. It is to be noted that no portion of the plug 98 projects either beyond the rim of the lid or the rim of the can, so as not to interfere with vertical stacking of the cans.

When it is desired to pour paint from the can, the plug 39 of FIG. 6 is unscrewed from the insert 92 and is replaced by a pouring spout 40, as illustrated at FIG. 7. The pouring spout comprises a tapered curved tubular member 110 having a radially extending annular flange 112 secured therearound, as by welding, soldering or bonding or the like, from the lower end thereof. Tabs 114 are formed on the outer surface of the tubular member 110 between the flange 112 and the lower end of the tubular member. Thus, the pouring spout may be screwed into the insert 92 in the can lid with the flange 112 forming a seal with the top surface of the lid. An annular gasket 116 may be secured to the lower surface of the flange 112 adjacent its periphery to aid in sealing the flange 112 with the top surface of the lid.

Referring to FIG. 8, a further modification of the invention is shown wherein the bottom end face of the internally threaded insert 112 is flush with the bottom surface of the lid 16 by being disposed and soldered in an upwardly extending cylindrical recess 118 formed around the aperture 90 in the lid. By disposing the bottom end face of the insert 92 flush with the bottom surface of the lid 16, all of the contents of the can 12 may be fully drained through the opening 90. The same results may be achieved also by means of the arrangement of FIG. 6 wherein the insert 92 is affixed in alignment with the aperture 90 above the lid 16 instead of beneath the lid as shown. It is to be noted that the insert 92 is preferably so dimensioned that no portion of the plug extends beyond the rim of the lid or the can so as not to interfere with vertical stacking of the cans.

Instead of an annular threaded insert 92 being welded, soldered or otherwise attached to the small aperture in the can lid 16 for removably securing a plug or an interchangeable pouring spout to the lid, as illustrated at FIGS. 6 and 8, the alternate arrangement of FIG. 9 may be used. As shown in FIG. 9, an aperture 120 is formed in the can lid 16 by piercing a hole in the lid by means of a punch and by forming an integral cylindrical flange 122 from an excess portion of the sheet metal of the lid disposed about the periphery of the hole. The cylindrical flange 122 is formed downwardly projecting, as illustrated, or alternately upwardly projecting, not shown, and threads 124 are formed in the flange to provide engagement with the external threads on the plug body and with the external threads on the threaded end of the pouring spout.

Having thus described the invention by way of examples of typical structural embodiments thereof, what is claimed as new is as follows:

1. In combination with a conventional can having an opening on the top thereof and a removable closure lid for said opening wherein said lid has an upwardly projecting rim and a flat portion generally recessed relatively to said rim, an improvement comprising:

   an aperture formed in the recessed flat portion of said lid proximate said rim;
a pair of opposed radially directed slots extending outwardly from said aperture and a pair of opposed arcuate flanges disposed between said slots around the periphery of said aperture and forming a pair of thread-like arcuate inclined ramps;

a removable plug for fitting said aperture, said plug being so dimensioned that the portion of said plug projecting from said lid is below any projecting portion of said rim and of said top of the can;

said plug comprising a generally flat annular member having a central cut-out portion therein, a generally flat circular member secured to said annular member over said cut-out portion, and a pair of opposed tabs integral with said annular member adjacent the periphery of said central aperture, each of said tabs extending outwardly a short distance from the plane of said annular member and radially from said cut-out portion and being disposed for insertion through one of said radial slots in the aperture in said lid for engagement beneath said arcuate flanges for securing said plug onto said lid over said aperture in the lid; and

a recess formed in said circular member for accepting a tool for driving said plug in rotation.

2. The improvement of claim 1, comprising a pouring spout interchangeable with said plug and comprising a generally flat annular member with a central aperture formed therein, a curved tubular member having one end secured to one side of said annular member over said central aperture, and a pair of opposed tabs integral with said annular member adjacent the periphery of said central aperture, each of said tabs extending outwardly a short distance from the plane of said annular member and radially from said central aperture, each of said tabs being disposed for insertion through said radial slots in the aperture in said lid for engagement beneath said arcuate flanges for securing said spout onto said lid over said aperture in the lid.

3. The improvement of claim 2, further comprising a closure for securing over the open end of said spout.

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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,672,547  Dated June 27, 1972

Inventor(s): ROBERT L. KOZLOWSKI

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

IN THE REFERENCES CITED

Change "1,316,441" to -- 1,361,441 --

IN THE ABSTRACT

Line 5, change "agent" to -- spout --

IN THE SPECIFICATION

Column 1, line 68, after "therein" insert -- in --

Column 2, line 69, change "end" to -- edge --

Column 3, line 19, change "top" to -- tip --

line 30, change "rotate" to -- rotated --

Column 4, line 31, change "l6" to -- 116 --

Signed and sealed this 21st day of November 1972.

(SEAL)

Attest:

EDWARD M. FLETCHER, JR.
Attesting Officer

ROBERT GOTTSCHALK
Commissioner of Patents