United States Patent

Kozlowski

[15] **3,672,547**

[45] **June 27, 1972**

[54] **CONTAINER WITH REPLACEABLE PLUG AND POURING SPOUT**

[72] Inventor: **Robert L. Kozlowski,** 29989 Woodhaven Lane, Southfield, Mich. 48075

[22] Filed: **Dec. 30, 1969**

[21] Appl. No.: **889,169**

[52] **U.S. Cl.** .....**222/567,** 220/40 R, 220/85 SP

[51] **Int. Cl.**.....**B65d 25/48**

[58] **Field of Search**.....222/570, 568, 567, 566, 540, 222/542; 220/25, 40, 55.1, 85 SP, 29

[56] **References Cited**

UNITED STATES PATENTS

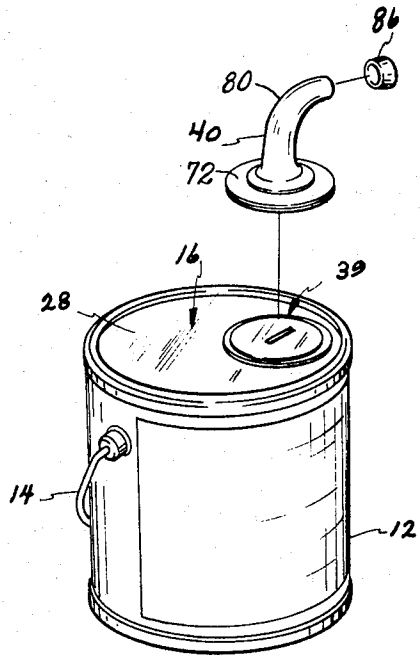
2,149,060	2/1939	Mackey	222/540
2,363,693	11/1944	Robinson	222/540 X
1,316,441	12/1920	Callaghan	222/567 X
3,058,633	10/1962	Muhlhoff	222/568
3,139,220	6/1964	Darcy	222/568 X

Primary Examiner—Robert B. Reeves
Assistant Examiner—Francis J. Bartuska
Attorney—Hauke, Gifford & Patalidis

[57] **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



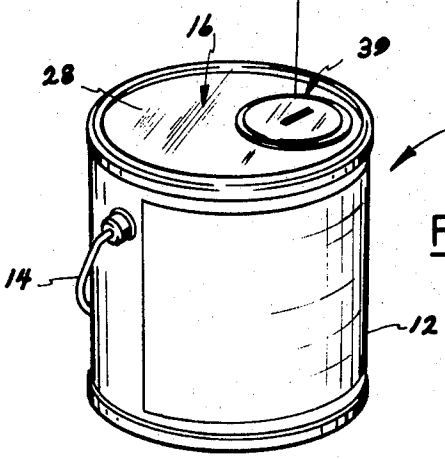


FIG-1

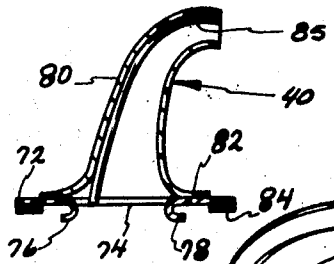


FIG-5

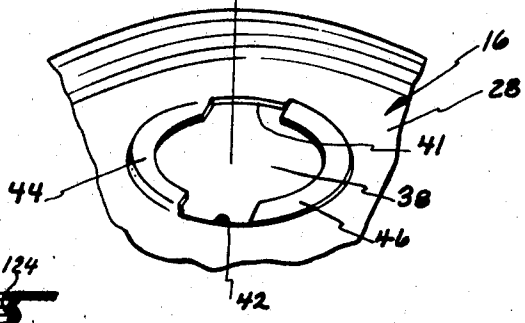


FIG-2

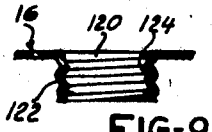


FIG-9



FIG-8

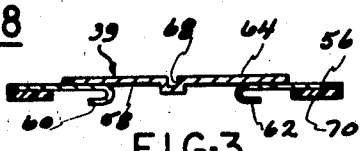


FIG-3

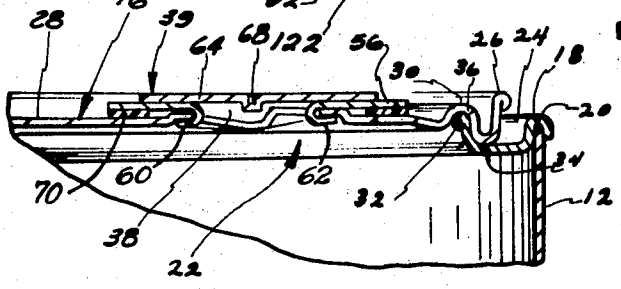


FIG-4

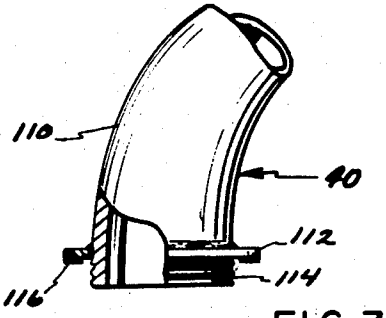


FIG-7

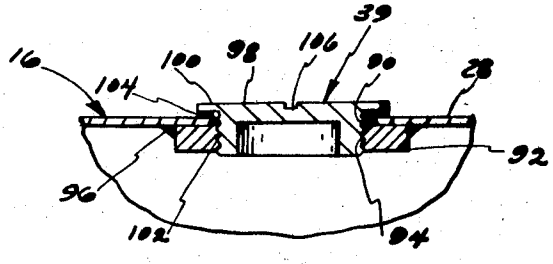


FIG-6

INVENTOR
ROBERT L. KOZLOWSKI
BY
Hauke Gifford & Patalidis
Attorneys

CONTAINER WITH REPLACEABLE PLUG AND POURING SPOUT

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 conforming 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 wedge shaped tool 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 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 painting 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 therein 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. **1** 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 portion **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 obturating 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-

tegrally with the material of the lid **16**, between the slots **41** and **42** around the periphery of the opening **38**. The flange portion **44** tapers downwardly relatively to the top surface of the lid from slot **42** to slot **41** and the flange portion **46** tapers downwardly relatively to the top surface of the lid from slot **41** to slot **42**.

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 **46** and **44** 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 intereference 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 of paint or other 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**. Once the pouring spout **40** has been secured to the lid **16**, paint may be poured from 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** so as to form 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 to not 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, bonding or the like, a short distance from the lower end thereof. Threads **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 **16** 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 **92** 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 thus 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 of 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, the 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.

* * * * *

KRL-102-A

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 "16"to - - 116 - -

Signed and sealed this 21st day of November 1972.

(SEAL)
Attest:

EDWARD M.FLETCHER,JR.
Attesting Officer

ROBERT GOTTSCHALK
Commissioner of Patents

FORM PO-1050 (10-69)

USCOMM-DC 60376-P69
* U.S. GOVERNMENT PRINTING OFFICE : 1969 O—366-334