Dec. 1, 1953 A. C. SPENCER 2,661,126

DISPENSING CONTAINER HAVING A SLIDABLE BOTTOM FORMING A FOLLOWER

Filed May 8, 1952

FIG. 1

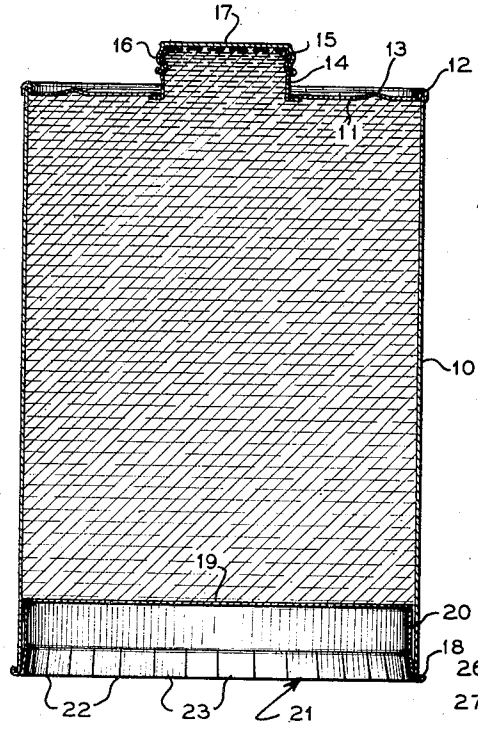


FIG. 2

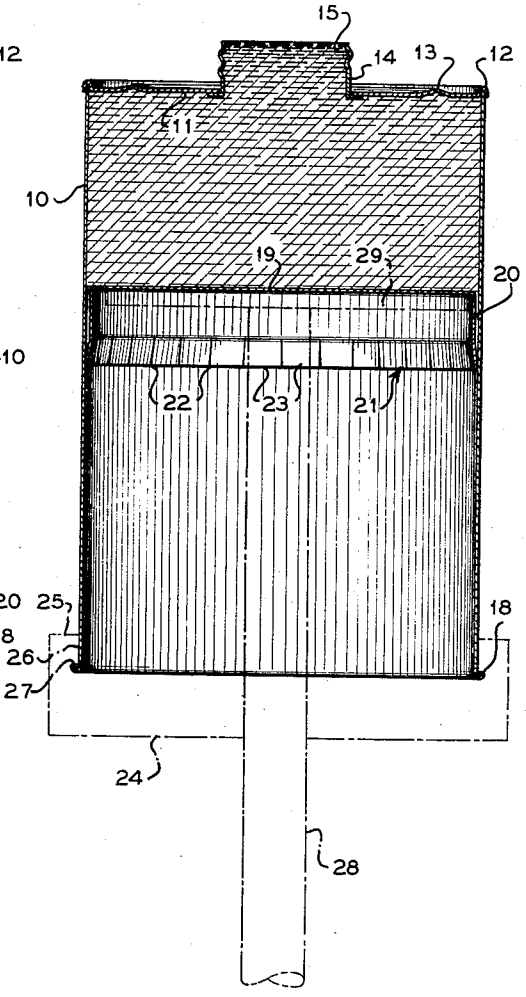
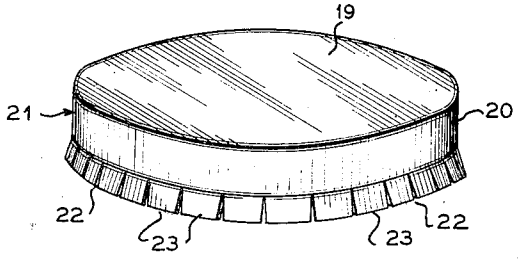


FIG. 3



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DISPENSING CONTAINER HAVING A SLIDABLE BOTTOM FORMING A FOLLOWER

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10 Claims. (Cl. 222—386)

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This invention relates to the packaging and handling of commodities including those containing varying amounts of moisture and capable of being dispensed from containers or receptacles of various kinds.

In addition to the packaging and handling of printing ink, the invention further relates to the dispensing of the same and particularly the holding and dispensing of substances of the character or consistency of ink of a type generally used in printing.

Printing ink is usually contained in one pound cans which vary in size on account of the fact that different colors and grades of ink vary both in consistency and volume. Variation in the size of the containers complicates the handling of the product and emphasizes the desirability of having containers of uniform size as well as a simple means for removing and dispensing the substance from its container or receptacle. Many print shops only have occasion to use a particular color or grade of ink at infrequent intervals and consequently the conventional method of storing such ink in cans with removable closures results in a particularly high loss of the contents thereof due to drying and the formation of a scum on the surface of the ink. By using the container of this invention and the dispensing mechanism therewith it is possible to completely eliminate the loss of ink due to drying since upon completion of dispensing of a certain quantity of ink from the container there is no air space left in the upper portion of the container and consequently after replacement of the closure there will be no drying or scumming of the ink. It has been found that this results in a saving of 25 to 50 per cent of the ink costs when compared to storing and dispensing ink in conventional ways.

It is therefore an object of this invention to provide a simple and inexpensive container or receptacle which can be easily and quickly handled and which is capable of holding substances of varying consistencies and specific gravities from which removal or dispensing can be accomplished, and which at the same time eliminates the formation of air spaces in the container or receptacle thus preventing drying and scumming of the contents thereof and a consequent loss of a portion of such contents. Another object of the invention is the provision of a dispensing container which may be manufactured without maintaining extremely close tolerances and which will be devoid of leaks and at the same time permit easy and convenient dispensing of the contents.

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A further object of the invention is the provision of a container which is readily adapted for use with a dispensing apparatus.

Additional objects and advantages of the invention will become apparent from the following description taken in conjunction with the accompanying drawings wherein:

Fig. 1 is a longitudinal section of a dispensing container illustrating the present invention;

Fig. 2, a view similar to Fig. 1 with the contents of the container partially dispensed and showing in phantom a dispensing device for use with such container; and

Fig. 3, a view in perspective showing the bottom of the container which also serves as a follower or piston for ejecting the contents therefrom.

With continued reference to the drawing there is shown in Fig. 1 a container having a body 10 of generally cylindrical formation and in the upper end of this body 10 there is disposed a top 11 which is secured to the body 10 by a bead 12 which serves to crimp the top 11 in place in fluid-tight relationship. If desired the top 11 may be provided with a strengthening rib 13 which may be embossed in the material of the top 11. Centrally disposed in the top 11 is a neck 14 which may be drawn from the material of the top or may be formed as a separate member and secured thereto by soldering or the like, neck 14 being provided with threads 15 designed to mate with threads 16 on a cap 17 which may be removably positioned on neck 14 to prevent leakage of the contents of the container. The body 10 of the container is provided at the lower edge thereof with a roller bead 18, the purpose of which will presently appear.

Slidably disposed within the body 10 of the container is a bottom closure member 19 of cup shape formation and having a cylindrical side wall 20. The diameter of wall 20 is slightly smaller than the internal diameter of body 10 of the container and the diameter of bottom closure member 19 is such that it may always be conveniently received within the body 10 regardless of variations due to manufacturing tolerances. Depending from the cylindrical wall 20 of bottom closure member 19 is an outwardly flared skirt 21. Skirt 21 is provided with spaced slits 22 which serve to form a plurality of resilient fingers 23. Slits 22 are spaced approximately one-quarter of an inch apart but this distance is not critical and any spacing which gives the desired results may be utilized.

As shown in Fig. 1, the bottom closure member

19 is received within the body 10 of the container with the resilient fingers 23 engaging the inner surface of the body 10. It will be obvious that inward movement of the bottom closure member 19 will in no way be impeded by the resilient fingers 23 since these fingers will move inwardly due to any variation in the inner surface of the body 10 and will slide easily on such surface. However, reverse movement of the bottom closure member 19 will be prevented by such fingers 23 due to the fact that the lower outer edges of these fingers will tend to bite into the inner surface of the body 10 and preclude retrograde movement of the bottom closure member 19.

It will thus be seen that the structure of the bottom closure member 19 provides a container which may be conveniently assembled regardless of variations in the manufacturing tolerances of the body 10 and in which a tight closure will be provided by the bottom closure member 19 since the resilient fingers 23 will adapt themselves to any diameter of body 10 within the limits of the device. The bottom closure member 19 which also forms a follower or piston for ejecting the contents of the container may be moved inwardly to eject such contents and will maintain any desired position after partial ejection of such contents. This position is maintained as mentioned above by reason of the biting engagement of the resilient fingers 23 and the container may be put aside until such time as it is desired to use the remainder of the contents thereof.

The container of this invention may be utilized with any desired dispensing means or in fact could be utilized by forcing bottom closure member 19 inwardly by manual manipulation thereof, nevertheless, the rolled bead 18 at the lower end of the body 10 of the container is provided to facilitate attaching the same to a dispensing device such as that disclosed in my copending application, Serial No. 251,395, filed October 15, 1951. While the dispensing device forms no part of this invention there is shown in phantom in Fig. 2 a dispensing device which may include a body 24 having a portion 25 for embracing the external surface of the body 10 of the container there being a U-shaped recess 26 formed in the body 24 and a groove 27 therein for receiving the bead 18. It will therefore be seen that it is merely necessary to slide the body 24 transversely of the container 10 with the head 18 in engagement with the groove 27 to securely lock the container in place within the body 24.

Also provided for movement through the body 24 is a rod 28 which may be threaded for axial movement thereof or may be moved axially by any other means, rod 28 being provided adjacent the upper end thereof with a plunger 29 which may be received in and engage the bottom closure member 19. Upon movement of the rod 28 inwardly with respect to the body 24, the plunger 29 will move the bottom closure member 19 inwardly of the body 10 of the container to eject the contents thereof through the neck 14. After removal of a sufficient quantity of the contents of the container the plunger 29 and rod 28 may be retracted and the body 24 removed from the body 10 of the container by transverse relative movement thereof and the dispensing device utilized with another container.

It will be seen that by the above described invention there has been provided a relatively simple and inexpensive dispensing container which may be conveniently manufactured without adhering to extremely close manufacturing tolerances and in which the bottom closure member will move freely inwardly to eject contents of the container but which will be prevented from outward movement and thus preclude leakage of the contents.

It will be obvious to those skilled in the art that various changes may be made in the invention without departing from the spirit and scope thereof and therefore the invention is not limited by that which is shown in the drawings and described in the specification but only as indicated in the appended claims.

What is claimed is:

1. A container and dispenser for printing ink comprising a container having a cylindrical body, a top secured to said body in fluid-tight relation, a strengthening rib formed in said top, a neck extending from said top centrally thereof, a cap removably secured to said neck, a bottom slidably disposed in said body, said bottom having a continuous cylindrical wall of slightly less diameter than the inner diameter of said body, an outwardly flared skirt integral with said cylindrical wall and extending from the lower edge of said cylindrical wall, spaced slits in said skirt providing a plurality of resilient fingers, said fingers slidably engaging the inner surface of said body and compensating for irregularities thereof, said fingers permitting inward movement of said bottom to eject the contents of said container, outward movement of said bottom being prevented by the biting engagement of the lower edges of said fingers with the inner surface of said body and a bead on the lower end of said body to facilitate securing the same to a dispensing device.

2. A container and dispenser for printing ink comprising a container having a cylindrical body, a top secured to said body in fluid-tight relation, a strengthening rib formed in said top, a neck extending from said top centrally thereof, a cap removably secured to said neck, a bottom slidably disposed in said body, said bottom having a cylindrical wall of slightly less diameter than the inner diameter of said body, an outwardly flared skirt integral with said cylindrical wall and extending from the lower edge of said cylindrical wall and spaced slits in said skirt providing a plurality of resilient fingers which may spring together to provide a continuous wall, said fingers slidably engaging the inner surface of said body and compensating for variations thereof, said fingers permitting inward movement of said bottom to eject the contents of said container, outward movement of said bottom being prevented by the biting engagement of the lower edges of said fingers with the inner surface of said body.

3. A container and dispenser for printing ink comprising a container having a cylindrical body, a top secured to said body in fluid-tight relation, a neck extending from said top centrally thereof, a cap removably secured to said neck, a bottom slidably disposed in said body, said bottom having a cylindrical wall of slightly less diameter than the inner diameter of said body, an outwardly flared skirt extending from the lower edge of said cylindrical wall and spaced slits in said skirt providing a plurality of resilient fingers, said fingers slidably engaging the inner surface of said body and compensating for variations in diameter thereof, said fingers

permitting inward movement of said bottom to eject the contents of said container, outward movement of said bottom being prevented by the biting engagement of the lower edges of said fingers with the inner surface of said body.

4. A container and dispenser for printing ink comprising a container having a cylindrical body, a top secured to said body in fluid-tight relation, a dispensing opening in said top, a bottom slidably disposed in said body, said bottom having a cylindrical wall of slightly less diameter than the inner diameter of said body, an outwardly flared skirt integral with said cylindrical wall and extending from the lower edge of said cylindrical wall and spaced slits in said skirt providing a plurality of resilient fingers which may spring together to form a continuous wall, said fingers slidably engaging the inner surface of said body and compensating for variations thereof, said fingers permitting movement of said bottom toward said top to eject the contents of said container, movement of said bottom away from said top being prevented by the biting engagement of said fingers with the inner surface of said body.

5. A container and dispenser for printing ink comprising a container having a cylindrical body, a top secured to said body in fluid-tight relation, a dispensing opening in said top, a bottom slidably disposed in said body, said bottom having a cylindrical wall, an outwardly flared skirt extending from the lower edge of said cylindrical wall and spaced slits in said skirt providing a plurality of resilient fingers, said fingers slidably engaging the inner surface of said body and compensating for variations in diameter thereof, said fingers permitting inward movement of said bottom to eject the contents of said container, outward movement of said bottom being prevented by the biting engagement of the lower edges of said fingers with the inner surface of said body.

6. A container and dispenser for printing ink comprising a container having generally cylindrical body, a top secured to said body in fluid tight relation, a dispensing opening in said top, a cup-shaped bottom having a continuous circular outline slidably disposed in said body, an outwardly flared skirt on said bottom and integral therewith and spaced slits in said skirt providing a plurality of resilient fingers which may spring together to form a substantially continuous periphery, said fingers slidably engaging the inner surface of said body and compensating for variations thereof, said fingers permitting inward movement of said bottom to eject the contents of said container, outward movement of said bottom being prevented by the biting engagement of the lower edges of said fingers with the inner surface of said body.

7. A container and dispenser for printing ink comprising a container having a cylindrical body, a top secured to said body in fluid tight relation, a dispensing opening in said top, a bottom slidably disposed in said body, an outwardly flared skirt on said bottom and spaced slits in said skirt providing a plurality of resilient fingers, said fingers slidably engaging the inner surface

of said body and compensating for variations in diameter thereof, said fingers permitting inward movement of said bottom to eject the contents of said container, outward movement of said bottom being prevented by the biting engagement of the lower edges of said fingers with the inner surface of said body.

8. A container and dispenser for printing ink comprising a container having a cylindrical body, a top secured to said body in fluid tight relation, a dispensing opening in said top, a bottom slidably disposed in said body, an outwardly flared skirt on said bottom and spaced slits in said skirt providing a plurality of resilient fingers which may spring together to form a substantially continuous surface, said fingers slidably engaging the inner surface of said body, said fingers permitting movement of said bottom to eject the contents of said container, outward movement of said bottom being prevented by the biting engagement of the lower edges of said fingers with the inner surface of said body.

9. A container and dispenser for printing ink comprising a container having a body, a top secured to said body in fluid-tight relation, a dispensing opening in said top, a bottom having a continuous peripheral outline complemental to the inner periphery of said container slidably disposed in said body, a plurality of downwardly and outwardly extending resilient fingers integral with said bottom and providing a substantially continuous wall when sprung together, said fingers slidably engaging the inner surface of said body, said fingers permitting inward movement of said bottom to eject the contents of said container, outward movement of said bottom being prevented by the biting engagement of the lower edges of said fingers with the inner surface of said body.

10. A container and dispenser for printing ink comprising a container having a body, a top secured to said body in fluid-tight relation, a dispensing opening in said top, a bottom having a continuous peripheral outline slidably disposed in said body, a plurality of downwardly and outwardly extending resilient fingers on said bottom which may spring together to form a continuous wall, said fingers slidably engaging the inner surface of said body, said fingers permitting inward movement of said bottom to eject the contents of said container, outward movement of said bottom being prevented by the engagement of the lower edges of said fingers with the inner surface of said body.

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