July 15, 1941. A. F. JENKINS 2,249,082

DISPENSING DEVICE

Filed May 31, 1940

Fig. 2

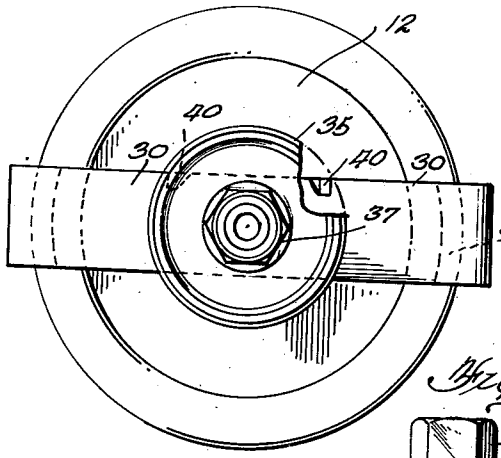


Fig. 3

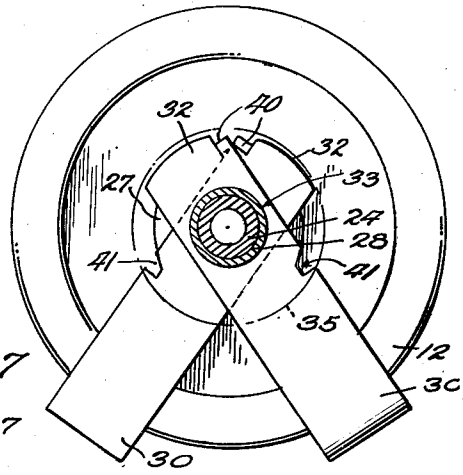


Fig. 7

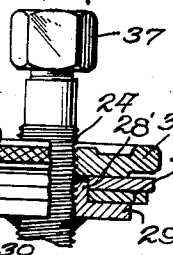


Fig. 1

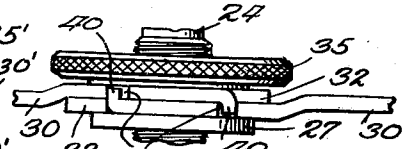


Fig. 4

Fig. 5

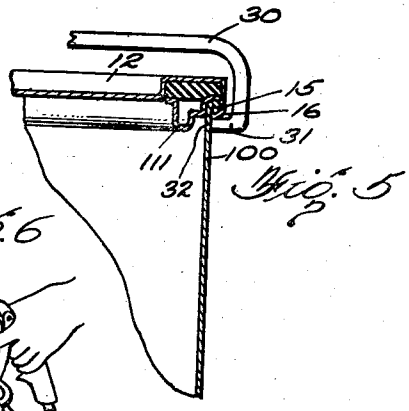
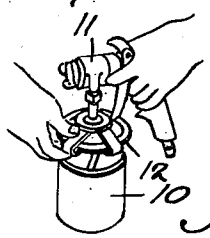


Fig. 6



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2,249,082

DISPENSING DEVICE

Alexander F. Jenkins, Baltimore, Md.

Application May 31, 1940, Serial No. 338,207

7 Claims. (Cl. 221—67)

This invention relates to containers and closures therefor, and more particularly to devices of this type which are adapted to be used in conjunction with the spray guns commonly employed in the application of coating materials such as paints, enamels, or the like.

The present application is a continuation-in-part of my copending application No. 181,854, filed December 27, 1937.

The general object of the invention is to provide a novel and improved container and dispensing closure of the character described, which is of simple construction, easy to assemble and dismantle, and which includes a cover assembly which is not limited to use with the container provided, but may be applied to a variety of different receptacles such as the original cans in which the paint or other coating materials are purchased.

More particular objects of the invention are the provision of novel locking means for clamping the cover on the container, and means associated therewith for limiting the movement of certain locking elements forming a part of the closure arrangement, and determining their locking and released positions.

Another novel feature is the provision of a cover locking means which when once applied in locking position will securely retain the cover and can together even though the locking or clamping mechanism is not actuated. The improved closure assembly provides a support or grappling means for suspending the container from certain instrumentalities such as spray guns or the like, such grappling means being adapted to provide a safe temporary support for the container which will prevent spilling the contents even before the closure has been firmly clamped to the container.

In its preferred embodiment, the device comprises a generally cylindrical can having an outwardly turned bead or flange around its upper margin and a circular cover having annular sealing means on its underside adjacent its periphery adapted to provide a fluid-tight connection with the can.

Centrally of the cover there is provided a tubular boss or sput which, besides serving as one section of the conduit through which the liquid is withdrawn from the container, also supports the syphon tube which projects downwardly into the can, the connections by which the assembly is attached to the spraying device, and the locking mechanism for the container cover. This last named feature comprises a pair of radially extending arms pivoted about the boss and provided with hooked ends which extend around the periphery of the cover and engage beneath the bead or flange of the container. These arms are also provided with stops which determine the limits of movement thereof for locking and releasing positions.

As another important feature of the invention, the sealing means on the cover is adapted to fit the rims of the original containers in which the liquid to be discharged is purchased, and the hooked ends of the lock arms are proportioned and shaped to engage beneath the marginal bead of the conventional container and to retain the cover in position even though the clamping nut has not been operated.

Other objects and features of novelty will be apparent from the following specification when read in connection with the accompanying drawing in which one embodiment of my invention is illustrated by way of example.

In the drawing:

Figure 1 is a view, half in elevation and half in vertical section, of a container and syphon cover assembly embodying the principles of the invention;

Figure 2 is a top plan view of the same with the closure in locking position;

Figure 3 is a similar view, the closure being in unlocked and released position ready for removal from the can;

Figure 4 is a fragmentary view in side elevation of the central portion of the locking means, the parts being in locking position;

Figure 5 is a fragmentary vertical sectional view showing the adaptation of the locking cover to an original paint container of conventional type;

Figure 6 is a view on a very reduced scale showing the method of applying the container to the spray gun and cover assembly; and

Figure 7 is a fragmentary view similar to the central portion of Figure 1 but showing a modified form of the invention.

As shown very clearly in Figure 1 of the drawing, the preferred embodiment of the invention includes a cylindrical container designated by the numeral 10 and a closure assembly generally indicated by the reference numeral 12. The container 10 has a smooth walled interior so as to present no obstructions to the draining of liquid therefrom nor to the insertion of the hand and a wiping cloth when the container is to be cleaned. The margin or rim of the upper open end of the container is spun or turned outwardly,

then downwardly, and then inwardly around a metallic insert 14 as shown at 15 in Figure 1 of the drawing. This provides a flange or bead at the upper outer margin of the can and forms a lower shoulder 16 with which the cover locking means may engage.

The closure assembly 12 comprises a circular cover or lid 18 having a downwardly facing annular recess 19 formed adjacent its periphery and of a diameter approximating that of the bead 15 of the container. Within this recess 19 there is disposed the gasket 20 which is adapted to form a fluid-tight seal between the cover and can.

Centrally of the cover 18 there is an opening 22 through which extends the short pipe section or tubular boss 24, which is rigidly secured to the cover 18 by means of the inner and outer lock nuts 25. By means of a coupling 26' at the lower end of the tubular member or boss 24 there is attached the syphon tube 26 which is preferably bent at an angle as shown so that the lower end will dip into the liquid at the lowermost portion when the can is tilted.

At a point slightly spaced above the cover 18 there is threaded upon the boss 24 a clamping nut 27, which comprises the washer 29 having a central boss 28 of smaller diameter, and a knurled disk 35 secured to the boss 28 as by means of the screw 34. Loosely pivoted upon the nut 27 are the inwardly extending, vertically offset, overlapping ends of the radial grappling and clamping arms 30, these arms being substantially identical in general configuration with the exception of the relative disposition of the stop portions which will be later described. The arms are each provided with downwardly and inwardly extending hooked outer end portions 31 which pass outwardly beyond the periphery of the cover 18 and extend well beneath the bead or flange 15 of the container so that their extreme ends may underlie and be clamped against the shoulder 16 provided by said bead. The extreme inwardly directed end surfaces 32 of the clamping arms may be made of an arcuate configuration to snugly fit the circular contour of the container wall, so that they cannot be shaken loose from the container once they are in aligned position. Circular openings 33 are provided in the inwardly directed ends of the arms 30, which snugly receive the centering portion or boss 28 of the washer 29. The overlapping ends of the arms 30 rest upon the flange of the washer 29, are adapted to be rotatably held between the washer and the knurled member 35 which forms the remaining portion of the nut 27 and is also threaded upon the boss or tubular section 24.

The upper end of the tubular boss 24 is internally threaded to provide for the connection of the coupling nipple 36 which has a substantially spherical upper end 37 and carries the connecting sleeve 38 for attachment to the corresponding paint supply nipple of a conventional spray gun.

From an inspection of Figure 6 of the drawing, and comparison of Figures 2 and 3, it will be readily apparent that when the arms are rotated toward each other in a scissors-like manner as shown in Figures 3 and 6, the cover may be applied laterally to the can and the hooked ends of the arm 30 disposed beneath the shoulder 16 of the bead 15 at adjacent points on the same side of the container. Then with the gasket 20 fitted to the rim of the container the arms are rotated beneath the lip or bead 15 in opposite directions until they extend diametrically as shown in Figure 2. The grappling arms 30, even in this preliminary or temporary position will effectively prevent accidental separation of the paint container from the supporting means. However, for effecting a permanent closure during continued operation of the device with which the container is associated the nut 27 is rotated upon the tubular section 24 so that it moves upwardly thereon, and the inturned ends 31 of the arms 30 are pressed firmly against the shoulder 16 of the head 15 and the container, the cover, and the supporting means are all locked firmly together.

In order, however, to limit the movement of the arms and determine their diametric position prior to locking them in place by means of the clamping nut 27, certain stop means are provided which will now be described. The inner ends of each of the arms 30 are slit adjacent the same side edges thereof to form a tongue 40 which is bent at a right angle so as to be directed away from the plane of its arm 30. One of the tongues 40 is directed upwardly and the other one downwardly so as to intersect the plane of the overlapping portion of the other arm 30. In order to accommodate the projecting portions of the tongues 40 when the arms 30 are disposed diametrically as in Figure 2 the side margins of the arms are indented as at 41 for the reception of the tongues 40. Thus it will be seen that there is provided stop means for positioning means for determining the locking position of the clamping arms. When the arms 30 are swung to the position shown in Figure 3, the tongues 40 will abut each other and thus provide stop means for the clamp arms in their extreme releasing position also.

It will be obvious that, if desired, only one of the arms 30 need be provided with a stop lug or tongue 40, but the double, mutually engaging arrangement illustrated and described herein is preferred as providing a stronger and better balanced construction.

In Figure 5 of the drawing there is shown a fragmentary cross section of a portion of the upper edge of a conventional paint container to which the cover and closure device 12 may be applied. This can or container is designated by the numeral 100 and is provided with a grooved cover retaining flange 111, a portion of which is spun or turned outwardly as at 15 to provide a shoulder 16 beneath which the hooked portion 31 of the locking arm 30 of the cover assembly may be applied. The gasket 20 of the cover presses upon the rim of the can and provides a fluid-tight closure just as in the case of the specially designed container previously described. Thus it will be seen that the present arrangement is equally applicable to the original containers in which the coating material is purchased, as well as the containers which may be furnished with the novel can and cover assembly. This arrangement permits the use of the original paint cans which are usually discarded, and enables the user to quickly make many changes in colors without having to clean out the containers. Also, new cans of the commercial type can be purchased at a very low price.

A modified form of the invention is shown in Figure 7 of the drawing in which a washer 29' is applied to the tubular boss 24 and secured against rotation thereon by any suitable means.

The inner overlapping ends of the grappling and clamping arms **30'** are provided with apertures as in the first case, and are fitted around the central boss **28'** of the washer. The arms **30'** are slightly resilient and are provided with similar outer ends to those described in connection with the first embodiment. A rotatable disk or nut **35** is threaded upon the tubular member **24** above the washer **29'** and, since the vertical height of the boss **28'** is somewhat less than the combined thickness of the arms **30'**, the disk **35'** when screwed down upon the arms will clamp them against the flange of the washer **29'** and prevent rotation thereof.

In applying this form of the invention to a container the arms are rotated toward each other and the hooked ends are placed beneath the shoulder **16** of the bead **15**. In this device the arms are so designed as to be placed under slight tension when the gasket **20** is fitted to the rim of the container and the arms rotated in opposite directions until they extend diametrically as shown in Figure 2. This inherent resilience of the arms, together with the compressibility of the gasket **20** insures a sufficiently tight fit of the cover to the container. The screwing down of the threaded disk **35'** prevents removal of the cover until the proper time. It is obvious that this modified form of grappling, supporting, and closing means may be applied to the original paint cans as described in connection with the first embodiment and as illustrated in Figure 5.

It will be understood that various changes can be made in the embodiments illustrated and described herein without departing from the scope of the invention as determined by the following claims.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. A combined suspension and closure device adapted for supporting a cylindrical can having an outwardly projecting annular bead around its upper rim, said device comprising, in combination, a circular cover disk having a downwardly extending peripheral flange embracing the upper end of said can, a tubular conduit passing through the center of said disk, means for securing the upper end of said conduit to a support, grappling means for attachment of a can to said device, said grappling means comprising a pair of radially extending arms having inner overlapping end portions pivotally attached to said central conduit for independent rotation in a plane parallel to that of the upper end of the can to and from diametrically aligned grappling positions, the outer ends of said arms extending beyond the periphery of said can and having downwardly and radially inwardly turned hooked end portions adapted to engage beneath said bead, the distance between the inwardly directed ends of said hooked end portions when disposed in diametrically opposite positions being approximately equal to the diameter of said container and, consequently, less than the external diameter of said bead, whereby said container cannot be removed without rotating said arms in directions toward each other, and means for clamping the arms to resist rotation from said grappling position and thus lock the can to said suspension device.

2. A combined suspension and closure device adapted for supporting a cylindrical can having an outwardly projecting annular bead around its upper rim, said device comprising, in combination, a circular cover disk, a tubular conduit passing through the center of said disk, means for securing the upper end of said conduit to a support, grappling means for attachment of a can to said device, said grappling means comprising a pair of radially extending arms having inner overlapping end portions pivotally attached to said central conduit for independent rotation in a plane parallel to that of the upper end of the can to and from diametrically aligned grappling positions, the outer ends of said arms extending beyond the periphery of said can and having downwardly and radially inwardly turned hooked end portions adapted to engage beneath said bead, the distance between the inwardly directed ends of said hooked end portions when disposed in diametrically opposite positions being approximately equal to the diameter of said container and, consequently, less than the external diameter of said bead, whereby said container cannot be removed without rotating said arms in directions toward each other, and means for clamping the arms to resist rotation from said grappling position and thus lock the can to said suspension device, the extreme edges of the radially inwardly directed ends of the hooked portions of the arms being arcuate and of a relatively great extent peripherally of the can whereby when the arms are in grappling position the can cannot be removed by being shifted transversely of the diametrically aligned arms.

3. A combined suspension and closure device adapted for supporting a cylindrical can having an outwardly projecting annular bead around its upper rim, said device comprising, in combination, a circular cover disk having a downwardly extending peripheral flange embracing the upper end of said can, a tubular conduit passing through the center of said disk, means for securing the upper end of said conduit to a support, grappling means for attachment of a can to said device, said grappling means comprising a pair of radially extending arms having inner overlapping end portions pivotally attached to said central conduit for independent rotation in a plane parallel to that of the upper end of the can to and from diametrically aligned grappling positions, the outer ends of said arms extending beyond the periphery of said can and having downwardly and radially inwardly turned hooked end portions adapted to engage beneath said bead, the distance between the inwardly directed ends of said hooked end portions when disposed in diametrically opposite positions being approximately equal to the diameter of said container and, consequently, less than the external diameter of said bead, whereby said container cannot be removed without rotating said arms in directions toward each other, and means operable upon the inner end portions of said arms for clamping the arms upon the container bead to resist rotation from said grappling position and thus lock the can to said suspension device, stop means provided upon at least one of said arms for preventing relative movement of said arms in one direction beyond said diametric position.

4. A combined suspension and closure device adapted for supporting a cylindrical can having an outwardly projecting annular bead around its upper rim, said device comprising, in combination, a circular cover disk having a downwardly extending peripheral flange embracing the upper end of said can, a tubular conduit passing through the center of said disk, means for securing the upper end of said conduit to a support, grappling means for attachment of a

can to said device, said grappling means comprising a pair of radially extending arms having inner overlapping end portions pivotally attached to said central conduit for independent rotation in a plane parallel to that of the upper end of the can, to and from diametrically aligned grappling positions, the outer ends of said arms extending beyond the periphery of said can and having downwardly and radially inwardly turned hooked end portions adapted to engage beneath said bead, the distance between the inwardly directed ends of said hooked end portions when disposed in diametrically opposite positions being approximately equal to the diameter of said container and, consequently, less than the external diameter of said bead, whereby said container cannot be removed without rotating said arms in directions toward each other, and a rotatable nut threaded upon said central conduit for clamping the arms upon the container to resist rotation from said grappling position and thus lock the can to said suspension device, stop means provided upon at least one of said arms for preventing relative movement of said arms in one direction beyond said diametric position.

5. A device of the class described comprising, in combination, a substantially cylindrical container open at one of its ends and provided with an outwardly projecting annular bead around said end; closure means for said container comprising a cover fitting the opening in said container and securing means for locking said cover to the container; said securing means consisting of two radially extending resilient arms each pivotally secured adjacent one end to the cover centrally of the latter for independent rotation in a plane parallel to that of the cover, hooked portions on the outer ends of the arms for engagement beneath said bead; the normal unsprung positions of said resilient arms being such that the space between the cover and said hooked ends is smaller than the distance between the lower edge of said bead and the end of the can against which the cover fits whereby in applying the cover said arms must be swung to positions upon the same side of the cover, the cover applied laterally to the container with the hooked ends of the arms disposed beneath the bead, and the arms tensioned as they are swung away from each other toward substantial alignment diametrically of said cover; stop means provided upon one of said arms and adapted to abut the other to prevent relative movement of said arms in one direction beyond said diametric position; and means for clamping the inner pivoted ends of said arms against rotation, whereby they may be securely retained in closure locking position.

6. A device of the class described comprising, in combination, a substantially cylindrical container open at one of its ends, closure means for said container comprising a cover fitting the opening in said container and securing means for locking said cover to the container, said securing means consisting of two radially extending arms each having overlapping and contacting inner end portions pivotally secured adjacent to the cover centrally of the latter for independent rotation in a plane parallel to that of the cover, means on the outer ends of the arms for engagement with a portion of the container, means for clamping the inner overlapping pivoted end portions of said arms firmly against each other in order to prevent rotation, whereby they may be securely retained in closure locking position, stop means provided upon one of said arms and adapted to abut the other when said arms are in substantial alignment diametrically of said cover for preventing relative movement of said arms in one direction beyond said diametric position, said stop means comprising a tongue struck from one of said overlapping portions of the locking arms into the plane of the other of said overlapping portions and adapted to abut said other portion.

7. A device of the class described comprising, in combination, a substantially cylindrical container open at one of its ends, closure means for said container comprising a cover fitting the opening in said container and securing means for locking said cover to the container, said securing means comprising a pair of radially extending arms each having overlapping inner end portions pivotally secured adjacent to the cover centrally of the latter for independent rotation in a plane parallel to that of the cover, means on the outer ends of the arms for engagement with a portion of the container, means for clamping the said arms against rotation, whereby they may be securely retained in closure locking position, stop means provided upon each one of said arms and adapted to abut the other when said arms are in substantial alignment diametrically of said cover, for preventing relative movement of said arms in one direction beyond said diametric position; said stop means comprising a tongue struck from the side margin of each one of said overlapping ends of the locking arms into the plane of the other of said overlapping ends and adapted to abut said other end, and a recess formed in the same margin of each of said end portions to receive the tongue of the other arm, when the arms are in diametric alignment.

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