PAINT CAN EXTENDER

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ABSTRACT

This invention relates to a device having a generally cylindrical main body defining an inner channel extending therethrough, a first connection member proximate one end of the device and a second connection member proximate the first connection member. The connection members are formed as annularly cantilevered snap-fit connectors, with each connection member sized to fit a particular opening in a container. Once engaged with the container, the contents may be poured through the inner channel and out through a pour spout formed distally from the connection members. An annular ring is disposed between each connection member and thereby defines an upper shoulder on the first connection member and a lower shoulder on the second connection member.
PAINT CAN EXTENDER

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This application claims priority from U.S. Provisional Application Ser. No. 61/368,916 filed Jul. 29, 2010; the disclosure of which is incorporated herein by reference.

BACKGROUND OF THE INVENTION

[0002] 1. Technical Field

[0003] This invention relates to containers for mixing and pouring substances contained therein. More particularly, this invention relates to selectively expanding the volume capacity of two differently sized containers. Specifically, this invention relates to a paint can extender which may removably snap-fit into two differently sized openings of two paint cans, thereby extending the cylindrical height of the paint can to allow a user to add and mix a volume increasing agent to the substance contained therein without overflowing the container.

[0004] 2. Background Information

[0005] Hereinbefore, there have existed paint can pour spouts which attach to the opening of the paint can to allow a user to more easily pour the contents into another container for containing the paint. These may incidentally increase the cylindrical height of the paint can as a necessary consequence of adding a portion to the opening of the paint can. However, recently it has been discovered that after-market paint additives are desired by consumers which may change the thermal properties of the paint. For example, a paint additive may be offered which increases the insulation properties of the paint, thereby allowing heat to stay trapped in a painted room longer in the winter, or repelling heat from outside of the painted room in the summer. As such, by adding these thermal additives to the paint, the overall volume of the paint increases. This leads to an overflowing of the paint when the additives are administered. Therefore, a need in the art exists to allow a user to extend the volume of the paint can.

[0006] Additionally, while metal paint can dimensions have been fairly standardized over the preceding years, manufacturers have begun developing newer plastic paint can designs which incorporate the latest injection molding technology. This has resulted in plastic paint cans, which may have slightly different diameters in the openings of the can. As such, commercial pour spout devices are snugly fitting only into one particularly sized opening. A larger or smaller diameter opening on the paint can cannot provide a snug snap fit connection as a necessary consequence of changing the diameter of the opening. Without a snug snap fit connection between the pour spout and the paint can, paint will spill out of the container when it is tipped to pour the paint. Therefore, a need exists in the art to provide a paint can extender or pour spout which may snugly snap fit onto more than one paint can openings, whereby the openings have different sized diameters.

BRIEF SUMMARY OF THE INVENTION

[0007] This invention relates to a paint can pour spout and volume extending device. This device snugly snap fits onto more than one sized opening in a paint can, thereby allowing the user to snugly snap fit the device onto different sized paint cans. Multiple annular shoulders are disposed on the base of the device to allow a snap-fit connection between the device and the paint can, whereby each annular shoulder is sized to fit a particularly sized paint can opening. Furthermore, elements of each snap-fit connection have been overlapped and interconnected to reduce space and material, and thereby provide a more efficient configuration for forming the two snap-fit connections.

[0008] On the inner surface of the device, there exists a raised portion corresponding to the annular extending shoulders on the external surface of the device. These raised portions are smoothed to provide a gradually sloping surface on the raised portion to more efficiently allow funneled of an additive over these sloped surfaces into the paint can. All severe shoulders or raised portions on the inner surface of the device have been eliminated to prevent the particles of an additive from collecting on such an area.

[0009] The device of the present invention also increases the available volume of the paint can, whereby a user may apply a volume increasing agent to the paint without overflowing the paint. The cylindrical shape of the paint can is axially extended to provide for an increased volume capacity.

[0010] This extender device includes a broad pour spout which aids in pouring of the paint, and a looped portion for hanging the pour spout when not in use or to grasp the pour spout for movement.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

[0011] A preferred embodiment of the invention, illustrated of the best mode in which Applicant contemplates applying the principles, is set forth in the following description and is shown in the drawings and is particularly and distinctly pointed out and set forth in the appended claims.

[0012] FIG. 1 is a perspective view of the top of the paint can extender;

[0013] FIG. 2 is a perspective view of the bottom of the paint can extender;

[0014] FIG. 3 is a side elevational view thereof;

[0015] FIG. 4 is a front elevational view thereof;

[0016] FIG. 5 is a sectional view of the paint can extender and a first paint can with portions in section;

[0017] FIG. 6 is an enlarged sectional view of a portion of FIG. 5;

[0018] FIG. 7 is a sectional view of the paint can extender engaged with the first paint can;

[0019] FIG. 8 is an enlarged sectional view of a portion of FIG. 7;

[0020] FIG. 9 is a sectional view of the paint can extender and a second paint can with portions in section;

[0021] FIG. 10 is an enlarged sectional view of a portion of FIG. 9;

[0022] FIG. 11 is a sectional view of the paint can extender and the first paint can substantially filled with paint;

[0023] FIG. 12 is a sectional view similar to FIG. 11 whereby a volume increasing agent is being added to the paint; and

[0024] FIG. 13 is a sectional view of the paint can extender and paint can of FIG. 12 with the pain being poured therefrom.

[0025] Similar numbers refer to similar parts throughout the drawings.
DETAILED DESCRIPTION OF THE INVENTION

0026 The paint can extender of the present invention is shown in FIGS. 1-13 and is indicated generally at 1. As shown in FIGS. 1-3, paint can extender 1 is integrally molded of a plastic material and is formed as a one-piece member, and has a generally cylindrical shape which includes an upper end 3, a lower end 5, an outer surface 7, and an inner surface 9 defining an inner channel 11 therethrough. A main body 13 extends from two annular stepped portions proximate lower end 5, whereby the two annular stepped portions define a first connection member 15 and a second connection member 17. Proximate upper end 3, main body 13 includes a pour spout 19 defined by an angled surface 20 and a pour lip 21.

0027 As shown in FIGS. 1-4, main body 13 terminates proximate upper end 3 in a flared edge 23 which extends substantially around the periphery of the top-most portion of paint can extender 1 terminating at pour lip 21. Flared edge 23 is defined by the intersection of outer surface 7 and an upper surface 27. A loop 29 defining an opening 31 is spaced diagonally apart from pour spout 19 and is formed proximate upper end 3 and provides a hanger for storing or hanging paint can extender 1 on a nail or other hanging element.

0028 Referring to FIGS. 3, 4, and 6, second connection member 17 extends from main body 13 in an annular stepped orientation relative to main body 13. Similarly, first connection member 15 extends from second connection member 17 in an annular stepped orientation relative to second connection member 17. First connection member 15 includes a first cam surface 33 positioned adjacent to a first lower shoulder 35, and a first annular surface 37 positioned intermediate first upper shoulder 39 and a first lower shoulder 35. The position and orientation of first lower shoulder 35, first annular surface 37, and first upper shoulder 39 forms an annular groove 34, wherein groove 34 is sized to receive a particular annular lip of a paint can, whereby the lip has a particular profile. As shown in FIG. 4, first cam surface 33 is formed with a notch 49 for allowing paint to drain back into the paint can after pouring.

0029 Similarly, second connection member 17 includes a second cam surface 41 positioned adjacent to a second lower shoulder 43, and a second annular surface 45 positioned intermediate second upper shoulder 47 and a second lower shoulder 43. The position and orientation of second lower shoulder 43, second annular surface 45, and second upper shoulder 47 form an annular groove 42, wherein groove 42 is sized to receive a particular annular lip of a paint can, whereby the lip has a particular profile. Second upper shoulder 47 is disposed on main body 13 proximate lower end 5. First upper shoulder 39, second cam surface 42, and second lower shoulder 43 define an annular ring 48 extending around the periphery of paint can extender 1.

0030 As shown in FIG. 3, first annular surface 37 has a diameter D1, second annular surface 45 has a diameter D2, and outer surface 7 of main body 13 proximate lower end 5 has a diameter D3. As can be readily determined from FIG. 3, diameter D1 is smaller than diameter D2, and diameter D2 is smaller than diameter D3. Furthermore, first annular surface 37, second annular surface 45 and outer surface 7 of main body 13 proximate lower end 5 are all parallel with one another, as well as parallel and co-axial with imaginary longitudinal axis 52 extending through inner channel 11 (FIG. 5).

0031 As shown in FIG. 6, the lower portion of inner surface 9, indicated generally at 51, is defined by a first slope 53 and a second slope 55, whereby the generally longitudi-
around the circumference of first connection member 15, thereby complementarily receiving annular upper portion 67 entirely along opening 31.

[0035] FIG. 8 shows the relative position of flexible lip 63 while the first connection is engaged. First upper shoulder 39 prevents paint can extender 1 from being further moved in the direction of Arrow A due to the abutting relationship between first upper shoulder 39 of first connection member 15 and top surface 69 of upper portion 65. When the first connection is engaged, top surface 69 firmly abuts first upper shoulder 39 to prevent paint can extender 1 from continuing in the direction of Arrow A. Likewise, first lower shoulder 35 releasably prevents upper portion 67 of flexible lip 63 from retracting back along first cam surface 33, due to the abutting relationship between bottom surface 73 and first lower shoulder 35. However, this abutment may be overcome by applying reasonable pressure to move paint can extender 1 in the opposite direction of Arrow A, thereby releasing paint can extender 1 from first paint can 53 by reversing the cantilever interaction with lip 63.

[0036] During the engagement of the first connection, first annular surface 37 abuts inner surface 71 along the entirety of both elements. As such, diameter D1 of first connection member 15 is configured to be substantially identical to diameter D4 which defines opening 59. If a user wishes to remove paint can extender 1 from the first connection with first paint can 53, the user simply moves paint can extender 1 in the opposite direction from Arrow A thereby flexing lip 63 and sliding bottom surface 73 and inner surface 71 along first cam surface 33 to release paint can extender 1 from first paint can 53.

[0037] Referring particularly to FIGS. 9 and 10, paint can extender 1 removably engages second paint can 75 using the same general method as described above for first paint can 53. However, diameter D5 defined by inner surface 84 is sized such that first connection member 15 bypasses an engagement with flexible lip 79 as paint can extender 1 is lowered in the direction of Arrow A. First connection member 15 passes through opening 77 and is located inside second paint can 75 when the second connection is engaged. Thereafter, second cam surface 41 engages top surface 83 and inner surface 84 thereby camming upper portion 81 of flexible lip 79 outwardly away from imaginary longitudinal axis 52. As inner surface 84 passes second cam surface 41, the second connection is formed by the engagement of upper portion 81 of flexible lip 79 with second connection member 17. This results in an abutting relationship between top surface 83 and second upper shoulder 47, between inner surface 84 and second annular surface 45, and between bottom surface 85 and second lower shoulder 43. As such, diameter D2 of second connection member 17 is configured to be substantially identical to diameter D5 which defines opening 77.

[0038] Paint can extender 1 is prevented from further movement in the direction of Arrow A by the abutting relationship between top surface 83 and second upper shoulder 47. Likewise, paint can extender 1 is prevented from further movement in the opposite direction of Arrow A by the abutting relationship between bottom surface 85 and second lower shoulder 43. However, the abutting relationship between bottom surface 85 and lower shoulder 43 may be overcome with sufficient force in the opposite direction of Arrow A, which thereby releases paint can extender 1 from engagement with second paint can 75.

[0039] As shown particularly in FIG. 6, it can readily be seen that first upper shoulder 39, second cam surface 41, and second lower shoulder 43 define annular ring 48. Incorporating first upper shoulder 39, cam surface 41, and second lower shoulder 43 into annular ring 48 creates an overlapping between first connection member 15 and second connection member 17, which saves material costs and generally provides an efficient method for disposing first connection member 15 and second connection member 17 on paint can extender 1. It is one of the primary features of this invention that annular ring 48 provides a lower abutment or shoulder for one snap-fit connection, while simultaneously providing an upper abutment or shoulder for a second snap-fit connection.

[0040] It can readily be seen from FIGS. 8 and 10 that first connection member 15 is configured to receive a particular profile of a flexible annular lip, and second connection member 17 is also configured to receive this same profile. This profile may be any profile common in the art, including a generally "P" shaped lip. Inasmuch as contemporary paint cans typically provide this profile to define the paint can opening, paint can extender 1 is particularly suited to provide an annular snap-fit connection between paint can extender 1 and conventional paint cans. It will be readily understood, that lips 63 and 79 are described herein as flexible, however, paint can extender 1 may alternatively be the flexing member to complete the cantilever snap-fit connection. Lower end 5 may flex inwardly to allow lips 63 or 79 to cantilever into first connection member 15 or second connection member 17.

[0041] Recently, manufacturers have begun producing paint cans having an opening of either diameter D4 or diameter D5. Therefore, to be usable across both sizes of paint can openings, paint can extender 1 must provide first connection member 15 as well as second connection member 17. Inasmuch as first annular surface 37 of first connection member 15 defines a diameter of D1, which is substantially identical to diameter D4, paint can extender 1 may be removably secured to paint cans having an opening of diameter D4. Furthermore, inasmuch as second annular surface 45 defines a diameter of D2, which is substantially identical to diameter D5, paint can extender 1 may also be removably secured to paint cans having an opening of diameter D5. As such, a user does not have to purchase two separate paint can extenders because paint can extender 1 is configured to removably engage either opening 59 or opening 77.

[0042] As shown in FIGS. 11-13, paint can extender 1 is used to increase the volume capacity of a paint can. The paint can shown in FIGS. 11-13 is first paint can 53, however, it will be readily understood that second paint can 75 may also be used in the same general method. As shown in FIG. 11, paint can extender 1 is moved in the direction of Arrow A to engage paint can extender 1 with first paint can 53. First paint can 53 is substantially filled with a substance 87, hereafter referred to as paint 87, having a first volume 88. As shown in FIG. 12, a volume increasing agent 89 is added to paint 87, thereby creating a hybrid substance 91 and increasing the volume of the overall mixture to a second volume 90. It will be readily understood that second volume 90 of hybrid substance 91 is greater than first volume 88 of paint 87 due to the addition of volume increasing agent 89 to paint 87 to form hybrid substance 91.

[0043] Volume increasing agent 89 may be in liquid or powder form, however, it is highly desirable for either form to be completely transferred and mixed into paint 87. Commercial pour spouts have the disadvantage of having ledges or
edges on the interior wall. Any edge or ledge extending along inner surface 9 would thereby catch and hold volume increasing agent 89 thereon, thus disrupting the desired mixing. As shown in FIGS. 1 and 5, inner surface 9 is particularly designed to be free of an edge or ledge by gradually transitioning between diameter D3 and D2 using second slope S5, and gradually transitioning between diameter D2 and D1 using first slope S3 when a transition is required along the longitudinal length of paint can extender 1. As volume increasing agent 89 is poured into first paint can 53 through inner channel 11, all particles of volume increasing agent 89 are transferred into paint 87 without catching or being disposed of on an edge or ledge on inner surface 9. Inner connection portion S1 provides a smooth longitudinal transition on inner surface 9 between upper end 3 and lower end 5, and particularly between main body 13, second connection member 17, and first connection member 15. Inasmuch as paint can extender 1 and volume increasing agent 89 work in conjunction, paint can extender 1 and volume increasing agent 89 may be distributed and sold together as a kit.

As shown in FIG. 13, after paint can extender 1 is engaged with first paint can 53 and hybrid substance 91 has been mixed and formed, first paint can 53 is tilted in the direction of Arrow B, which prompts hybrid substance 91 to move in the direction of Arrow C, thereby flowing through pour spout 19 and outwardly in the direction of Arrow D. Thus, paint can extender 1 facilitates an engagement with first paint can 53 such that paint 87 or hybrid substance 91 must flow through inner channel 11. Paint can extender 1 is sufficiently removably locked onto first paint can 53 such that no spilling or leaking occurs around lower end 5 while paint can extender 1 is engaged with first paint can 53.

Paint can extender 1 must be sufficiently longitudinally capable of holding hybrid substance 91 with second volume 90 therein. The length requirement is necessary not only to hold second volume 90, but to allow agitating and mixing of paint 87 and volume increasing agent 89, which typically results in the mixture flowing up and down in paint can extender 1 as agitating occurs. Thus, present commercial pour spouts do not supply the necessary volume increasing capability of paint can extender 1. As such, it is a desirable feature of a preferred embodiment of paint can extender 1 to have a general length of between 2 to 4 inches, measured from the top surface of the paint can opening, shown in FIG. 12 as top surface 69 of upper portion 67, and preferably to have a length of approximately 3 inches. The preferred embodiment also includes an overall width proximate upper end 3 of paint can extender 1 of between 5 and 7 inches, and preferably to have a width of approximately 6 inches. Furthermore, the preferred embodiment of paint can extender 1 is formed of a one-piece molded plastic material.

In the foregoing description, certain terms have been used for brevity, clearness, and understanding. No unnecessary limitations are to be implied therefrom beyond the requirement of the prior art because such terms are used for descriptive purposes and are intended to be broadly construed.

Moreover, the description and illustration of the invention is an example and the invention is not limited to the exact details shown or described.

1. A device comprising:
   a generally cylindrical main body defining an inner channel extending therethrough, and including an outer surface, an inner surface, an upper end, and a spaced apart lower end;
   a first annular connection member proximate the lower end of the main body, whereby the first connection member has a first diameter and is adapted to be removably secured in a circular opening of a first container;
   a second annular connection member proximate the lower end of the main body, whereby the second connection member has a second diameter and is adapted to be removably secured in a second circular opening of a second container; and
   whereby the first diameter is smaller than the second diameter.

2. The device of claim 1, wherein the first connection member includes an annular upper shoulder, an annular lower shoulder, and an annular first surface extending therebetween.

3. The device of claim 2, wherein the second connection member includes an annular upper shoulder, an annular lower shoulder, and an annular second surface extending therebetween.

4. The device of claim 3, wherein the first annular surface is parallel with the second annular surface.

5. The device of claim 3, wherein the first annular surface is co-axial with the second annular surface.

6. The device of claim 3, wherein the first connection member further includes an annular cam surface and the second connection member further includes an annular cam surface.

7. The device of claim 6, further comprising an annular ring defined by the upper shoulder of the first connection member and the cam surface and lower shoulder of the second connection member.

8. The device of claim 1, further comprising a pour spout located proximate the upper end.

9. The device of claim 1, wherein the inner surface of the main body is free of any sharp edges.

10. The device of claim 1, wherein the device is formed of a one-piece molded plastic material.

11. The device of claim 1, further comprising a third diameter defined by the outer surface proximate the lower end of the device, and wherein the second diameter is smaller than the third diameter.

12. In combination:
   a first container having an internal chamber and a first opening;
   a second container having an internal chamber and a second opening of a different size than the first opening;
   a device comprising:
     a main body having an upper end, a lower end, and a channel extending therethrough;
     a first connection member located proximate the lower end and configured to removably engage and form a substantially fluid-tight seal with the first opening of the first container; and
     a second connection member located proximate the lower end and configured to removably engage and form a substantially fluid-tight seal with the second opening of the second container.
13. The combination of claim 12, wherein the first container includes a first lip, and wherein the first connection member includes a first annular groove sized to complementarily receive the first lip to removably engage the first connection member with the first opening to form a substantially fluid-tight seal therebetween.

14. The combination of claim 13, wherein the second container includes a second lip, and wherein the second connection member includes a second annular groove sized to complementarily receive the second lip to removably engage the second connection member with the second opening to form a substantially fluid-tight seal therebetween.

15. The combination of claim 14, whereby the first annular groove includes a first diameter, the first lip includes a second diameter substantially equal to the first diameter, the second annular groove includes a third diameter, and the second lip includes a fourth diameter substantially equal to the third diameter.

16. The combination of claim 15, whereby the first diameter is smaller than the third diameter.

17. The combination of claim 16, whereby the first diameter is parallel and coaxial with the third diameter.

18. In combination:
a device having an upper end, a lower end, a channel extending therethrough, a pour spout located proximate the upper end, a first connection member located proximate the lower end, and a second connection member located proximate the lower end, and wherein the device is adapted to be engaged with top openings of paint cans having differing sizes; and

19. The combination of claim 18, wherein the device is formed of a one-piece molded plastic material.

20. The combination of claim 19, wherein the first connection member and second connection member are annularly cantilevered snap-fit connections.

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