May 3, 1960 J. J. CROWLEY 2,935,223

CAN BAIL CONSTRUCTION

Filed July 30, 1958

Fig. 1

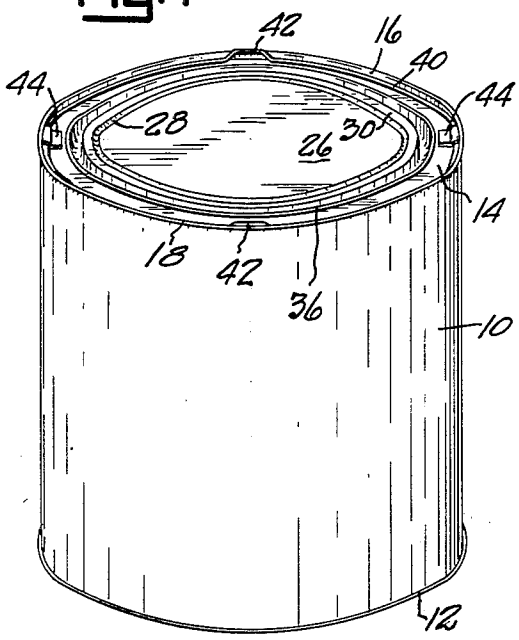


Fig. 2

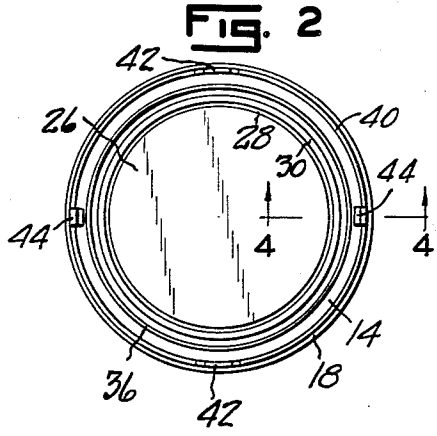


Fig. 3

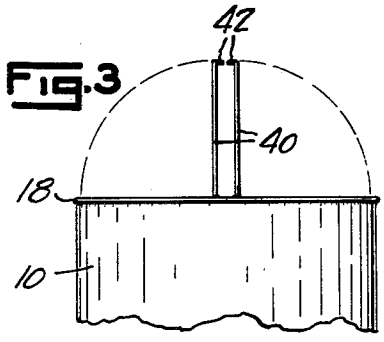


Fig. 4

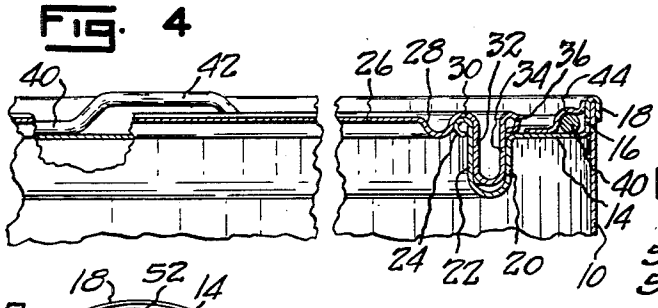


Fig. 5

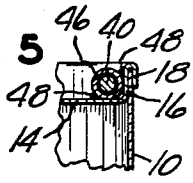


Fig. 6

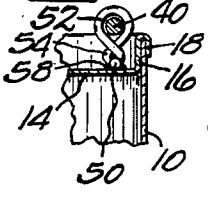


Fig. 7

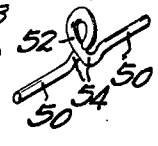


Fig. 9

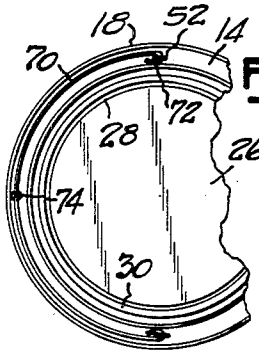
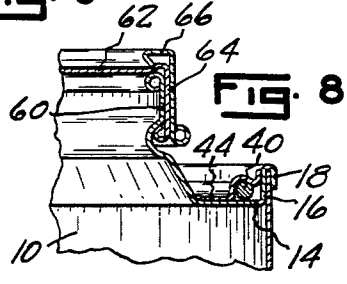


Fig. 8



INVENTOR.
JEROME J. CROWLEY.
BY
Eugene C. Knoblock
ATTORNEY

United States Patent Office

2,935,223

Patented May 3, 1960

2,935,223

CAN BAIL CONSTRUCTION

Jerome J. Crowley, South Bend, Ind.

Application July 30, 1958, Serial No. 752,028

2 Claims. (Cl. 220—91)

This invention relates to improvements in can bail constructions.

The primary object of this invention is to provide a novel, simple can bail construction which can be fabricated and assembled upon a can by machinery, which reduces the cost of the can and bail assembly, which eliminates the need for bail pivot socket members now commonly secured to the side walls of cans, which permits the can bail to lie normally within the overall outline or contour of the can so as to facilitate stacking of cans, and which eliminates the need for manually applying can bails to cans at pivot sockets on the can.

A further object is to provide a can bail fitting within the outer rim at the top of the can and around the opening in which a lid is detachably fitted in multiple friction lids, said can being provided with diametrically spaced parts for anchoring the bail thereto, and said bail being shiftable out of the plane of the top of the can to a substantially upright position to facilitate carrying of the can.

Other objects will be apparent from the following specification.

In the drawing:

Fig. 1 is a perspective view of a can having my improved bail construction;

Fig. 2 is a top plan view of a can having my improved bail construction;

Fig. 3 is a fragmentary side view of a can showing my improved bail construction in operative position;

Fig. 4 is an enlarged fragmentary detail sectional view taken on line 4—4 of Fig. 2;

Fig. 5 is an enlarged fragmentary detail sectional view taken on line 4—4 of Fig. 2, and illustrating a modified construction of the bail anchoring means;

Fig. 6 is a fragmentary sectional view taken on line 4—4 of Fig. 2 and illustrating another modified construction of bail anchoring means;

Fig. 7 is a perspective view of the bail anchoring means used in the construction shown in Fig. 6;

Fig. 8 is a fragmentary sectional view taken on line 4—4 of Fig. 2 and illustrating the use of my improved bail construction upon another type of can; and

Fig. 9 is a fragmentary top plan view illustrating another modified embodiment of my improved can bail construction.

Referring to the drawing, and particularly to Figs. 1 to 4, which illustrate one embodiment of the invention, the numeral 10 designates the cylindrical body of a metal can which is provided with a bottom member (not shown) anchored to the cylindrical body 10 by means of a rolled joint or chime or seam 12. As illustrated in Figs. 1 to 4, the can is of the type having a multiple friction lid, and specifically of the type known in the art as having a triple tight sealed construction. In this construction an annular top part 14 extends inwardly from a marginal portion thereof which is characterized by a cylindrical upturned flange portion 16 which is rolled or otherwise bent outwardly and downwardly around the top edge of

the wall 10 to form a bead or chime 18 having a sealed connection with the wall 10. A U-shaped downwardly projecting portion is formed at the inner margin of the annular top wall part 14 concentric with the wall 10 and spaced therefrom. This U-shaped portion has an outer downwardly projecting wall 20, an inner upwardly projecting wall portion 22, and terminates in a curled portion or bead 24 at the upper end of the inner cylindrical wall 22 and preferably at a level above the level of the wall portion 14 but below the level of the top rim or bead 18 of the can. The cover or closure 26 of the can constitutes the usual metal disk 26 preferably having a circular downwardly offset portion 28 of U-shape in cross-section fitting snugly within the bead 24. An inverted U-shaped portion 30 of circular outline fits over and around the bead 24, and a comparatively deep U-shape downwardly offset part defines the margin of the cover and is characterized by substantially parallel spaced inner substantially cylindrical wall 32 and outer substantially cylindrical wall 34. The spacing of the outer face of the wall 34 from the inner face of the wall 32 is preferably equal to the spacing of the confronting faces of the wall parts 20 and 22 of the can top so that a snug friction fit occurs between the cover parts 32 and 34 and the can cover parts 20, 22. The can top 26 may have a bead at its outer edge to accommodate insertion of a tool to pry the lid 26 from the sealed position on the can top.

My improved bail construction constitutes an endless bail ring 40 which preferably is of a diameter to fit with slight clearance within the cylindrical flange 16 of the can top 14 and to bear upon the can top 14 spaced from the inner marginal sealing groove 20, 22 thereof. The bail ring 40 is preferably flat throughout except at one or more portions 42 thereof, which are preferably diametrically opposed and are upwardly offset to accommodate insertion of a prying tool thereunder. Retaining means are provided to anchor diametrically opposed parts of the bail ring 40 to the can, as illustrated in Figs. 1, 2 and 4. Such retaining means preferably constitute sheet metal anchor members 44 which are soldered or otherwise secured to the can top 14 inwardly of the ring 40 and at the cylindrical portion 16 above the ring 40. The members 44 will preferably be diametrically opposed and will be displaced at approximately 90 degrees from the offset portions 42, as best seen in Figs. 1 and 2. The members 44 will preferably be constructed to accommodate assembly thereof upon a can along with the bail ring 40 by automatic machinery during manufacture of the can so as to eliminate the manual assembly or connection of a can bail upon a can, as is required with conventional can bail constructions. It may also be mentioned that the amount of offset of the parts 42, as shown herein, has been somewhat exaggerated for purposes of illustration, and that the amount of the upward offset of the parts 42 may be less than that here shown so that the offset lies completely below the level of the top edge of the bead 18 of the can.

Cans of this construction provided with my improved bail mount can be handled for filling thereof and for sealing thereof by conventional equipment available for those services and can be packaged, boxed, or stored, using the same handling equipment now employed for that purpose in factories which market their products in such cans. It will be observed that stacking of the cans is not interfered with by reason of the location of the bail upon the top of the can. Whenever an ultimate purchaser of the product contained in the can desires to use the bail for the purpose of carrying the can, all that is required is to insert a prying tool under the offsets 42 to bend opposed semi-circular portions of the bail upwardly to an

extent permitting the user to grasp the same by hand and to complete the operation of swinging the bail to operative handle-forming position, as illustrated in Fig. 3. When the bail is bent to this condition it normally remains in that position but, by reason of the dimensions of the bail, the bail does not interfere with the application of the cover **26** to seal the container nor does it interfere with removal of the cover **26** from the container. In the event the contents of the container are not used completely at one time or application and it is desired to reseal the can and store the same in a stacked condition, awaiting requirement for use of the remaining content thereof, the ring can be bent again toward flat condition so as to permit other cans to be stacked on the resealed can with the flattened bail. The bail ring, being formed of wire, may be bent several times between flat and upright position, although bending in this fashion rapidly weakens the wire so that only a limited number of bends thereof can be effected. Usually, however, where the cans are used to contain paint and like products, the storage of partially used content is not a problem since paint tends to evaporate or to set within a can which has once been opened.

In the modified construction illustrated in Fig. 5, a ring or tube **46** encircles the bail ring **40** and is anchored to the can top **14** and its cylindrical flange **16** at **48** as by means of solder. It will be understood, however, that the use of a ring or sleeve **46** is not required and that limited portions of the bail ring **40** may be soldered directly to the can top **14** if desired.

Another modification of the invention is illustrated in Figs. 6 and 7, wherein bail retainers or pivots are formed of wire. As best seen in Fig. 7, the wire has opposed end portions **50** adapted to lie flat upon the can top **14** and has a central loop portion **52** intermediate its ends and extending upwardly. If desired, the portions **54** of the wire between the end parts **50** and the loop **52** may be bent around each other so as to position loop **52** in a plane at an angle and preferably substantially perpendicular to the axes of the end portions **50** of the wire. This permits the wire end portions **50** to extend alongside the flange **16** of the container, while the loop **52** is positioned substantially radially to receive the bail ring **40** freely therethrough. The end portions **50** will be secured to the can top **14** in any suitable manner as by soldering at **58**. In Fig. 6 the loop **52** of the retainer is shown projecting above the level of the top of the bead or chime **18** of the container, but it will be understood that the loop **52** need not project above this level, particularly in the event that the loop is formed without bending the portions **54** of the retainer around one another, as here illustrated.

Fig. 8 illustrates the application of the invention to a can of the so called "Magnaseal" type, as covered by Patent No. 2,045,480 and characterized by a neck portion **60** formed at the inner margin of the top portion **14** and projecting above the level of the marginal bead or chime **18** of the can. The top of the neck is spanned by a cover **62** having a marginal multiple tongue portion **64** fitting around the exterior of the neck **60** and anchored in place by a retaining ring **66**. The bail-forming ring encircles the neck portion **60** in outwardly spaced relation thereto, and may be anchored by any suitable retainers, such as retainers **44**. It will be apparent that, when the bail is mounted upon a can of this construction, it may be advantageous to provide the offsets **42** thereof projecting above the level of the top chime **18** of the can to receive a pry for raising the same to a position at which they can be gripped and swung to erect position. Likewise, the can construction shown in Fig. 8 is particularly well suited for use of bail retainers of the character shown in Figs. 6 and 7 which project above the level of the can chime or bead **18**.

While the use of a bail formed of a circular endless wire ring, as described above, is preferred, it is not essential, and Fig. 9 illustrates a semi-circular bail **70** having looped end portions **72** which are pivotally connected or otherwise anchored at diametrically opposed points of the top portion **14** as by means of the loops **50**, **52** illustrated in Figs. 6 and 7. A spot of solder **74** may be provided to releasably anchor the bail **70** against free pivoting on the retainer **52** during filling, shipping and display. It will be understood, however, that the ends of a semi-circular bail **70** may be soldered or otherwise secured in a manner to fixedly position the semi-circular bail flat upon the can top **14** and in a manner to require bending thereof to upright position when prepared for use. In such instances the constructions shown in Figs. 1 to 8 of the drawing may be used to anchor the bail ends or any other construction found suitable, and the semi-circular bail may be bent at **72** at its end to retain the same against release from such mountings, if desired, or may be flattened or otherwise deformed for the same purpose. In such an arrangement it will be understood, of course, that the spot solder **74** is rendered unnecessary.

Each embodiment of the invention contemplates the positioning of a bail at the top of the can within the recess outlined by an upstanding marginal flange and in a position and a manner to accommodate retention thereof by simple structures which are easily applied by machinery during the can manufacturing process. All embodiments contemplate the avoidance of any interference with stacking and the retention of the bail in horizontal flat position until it is forcibly dislodged or displaced from such position to upright position.

While the preferred embodiments of the invention have been illustrated and described, it will be understood that changes in the construction may be made within the scope of the appended claims without departing from the spirit of the invention.

I claim:

1. A wire bail for cans of the type having a removable cover of the friction retained type seating in a central opening in an annular top wall having an upturned circumferentially uniform marginal rim portion, comprising a curved wire, and means securing said wire to said top wall in substantially horizontal position substantially concentrically with and spaced outwardly from said cover and with clearance relative to said upturned marginal rim, said means including substantially diametrically opposed bail anchors, said bail securing means releasably retaining said bail in horizontal position, said wire constituting a ring bendable to upright position between said anchors.

2. A wire bail for cans of the type having a removable cover of the friction retained type seating in a central opening in an annular top wall having an upturned circumferentially uniform marginal rim portion, comprising a curved wire, and means securing said wire to said top wall in substantially horizontal position substantially concentrically with and spaced outwardly from said cover and with clearance relative to said upturned marginal rim, said means including substantially diametrically opposed bail anchors, said bail securing means releasably retaining said bail in horizontal position, said wire constituting a ring having upward pry-receiving offset portions at opposite parts thereof and being bendable from said anchors to substantially upright position.

References Cited in the file of this patent

UNITED STATES PATENTS

922,971	Tevander	May 25, 1909
1,016,755	Loweree	Feb. 6, 1912
1,616,305	Coyle	Feb. 1, 1927
2,731,155	James	Jan. 17, 1956

FOREIGN PATENTS

128,925	Sweden	Aug. 1, 1950