OPENING MEANS FOR A CONTAINER

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ABSTRACT OF THE DISCLOSURE

This disclosure relates to opening means for container means such as a cylindrical beverage can, for example, wherein such opening means enables severing of an elongated strip from a top wall of such cylindrical beverage can and such strip is held attached to the top wall. The opening means includes a pull ring having a finger receiving aperture in its central portion and a tab extending outwardly of such central portion and such tab is attached to one end portion of the elongated strip. The tab has reinforcing means including curved flange means in its outer periphery enabling application of comparatively large opening forces.

This invention pertains to nondetachable opening means and more particularly to improved nondetachable opening means for container means and to improved container means having such improved opening means, or the like. Many products, such as beverages, for example, are sold in cans having an individual pull device to enable the provision of a dispensing opening in top wall means thereof. Because of the resulting great demand for such pull devices many competitive constructions have been previously proposed. Each of such provisions proposed pull devices is either comparatively expensive to produce and/or lacks the necessary structural strength to assure that the desired dispensing opening is provided in an associated beverage can. In addition, practically all of the previously proposed pull devices are severed completely away from their associated cans and discarded. Because of their small size and sharp edges such completely severed devices are quite dangerous when discarded on trash areas, for example, or in ash trays that must be subsequently cleaned.

Accordingly, it is a feature of this invention to provide improved container means having an improved nondetachable opening means having strong structural strength and which can be produced in an economical manner.

Another feature of this invention is to provide such improved opening means particularly adapted for providing a dispensing opening in an associated can enabling easy dispensing of a liquid product carried within such can.

Another feature of this invention is to provide an improved cylindrical can, or the like, having nondetachable opening means of economical construction which enables severing of an elongated dispensing opening practically completely across the entire circular top wall of such can.

Another feature of this invention is to provide an improved opening means for providing a dispensing opening in a cylindrical beverage can, for example, in which such opening means is constructed and arranged to enable the application of a strong opening force and hence the rapid provision of a comparatively wide area dispensing opening.

Another feature of this invention is to provide an improved nondetachable opening means comprising an elongated strip defined by substantially U-shaped score means in the central portion of circular top wall means of a cylindrical beverage can, or the like, in which such elongated strip is comparatively wide yet extends across substantially the full diameter of such top wall means and enables provision of a large dispensing opening thereon severing thereof to enable easy dispensing of beverage contained within such beverage can, and such severed strip having an end portion attached to such top wall means adjacent its circumference enabling it to be bent along the cylindrical side wall of such beverage can away from the dispensing opening.

Another feature of this invention is to provide an improved high strength pull ring means which may be used to exert a large force sufficient to define a large dispensing opening of the character described above.

Another feature of this invention is to provide an improved pull ring means of the character mentioned made from a flat strip of metal to thereby substantially reduce the cost thereof.

Another feature of this invention is to provide an end closure for a cylindrical container having such opening means and/or pull ring means provided as an integral part thereof.

Therefore, it is an object of this invention to provide an improved opening means for container means and an improved container having such improved opening means having one or more of the novel features of this invention as set forth above or hereinafter shown or described.

Other objects, uses, and advantages of this invention are apparent from a reading of this description which proceeds with reference to the accompanying drawings forming a part thereof and wherein:

FIGURE 1 is a perspective view of cylindrical container means, such as a right circular cylindrical beverage can, having the improved nondetachable opening means of this invention provided in top wall means thereof.

FIGURE 2 is a view looking perpendicular to the top of the beverage can of FIGURE 1.

FIGURE 3 is a fragmentary perspective view of the top end portion of the beverage can of FIGURE 1 showing the manner of inserting a finger through pull ring means comprising such opening means and showing the manner of starting to sever an elongated strip in the top wall of such container means to define a dispensing opening.

FIGURE 4 is a perspective view similar to FIGURE 3 showing an elongated strip severed from the central portion of the top wall of the container of FIGURE 1 to define a comparatively large dispensing opening and showing such severed strip bent along vertical side wall means of such container to enable easy dispensing, as by pouring a beverage from such dispensing opening or drinking such beverage directly therefrom, without interference from the severed strip.

FIGURE 5 is an enlarged sectional view on the line 5—5 of FIGURE 1.

FIGURE 6 is a perspective view illustrating improved pull ring means of this invention.

FIGURE 7 is a sectional view on the line 7—7 of FIGURE 6.

FIGURE 8 is an enlarged fragmentary perspective view particularly illustrating tab means extending beyond the outer periphery of the main body of improved pull ring means of this invention. Particularly illustrating curved flange means provided in the outer periphery of such tab means and defining reinforcing means provided in such pull ring means.

FIGURE 9 is a sectional view on the line 9—9 of FIGURE 8.

FIGURE 10 is a sectional view on the line 10—10 of FIGURE 2 particularly illustrating the arrangement of score means provided in the top wall of the cylindrical container of FIGURE 1 and illustrating rib means in
such top wall arranged outwardly of such score means to provide improved structural rigidity for such top wall. Variations of the various features of this invention are herein illustrated and described as being particularly adaptable for providing improved non-detachable opening means having improved pull ring means and improved container means such as cylindrical beverage cans for beverages of all types, or the like, it is to be understood that the various features of this invention can be utilized singly or in any combination thereof to provide improved non-detachable opening means and container means having such improved opening means for other products and uses, as desired.

Therefore, this invention is not to be limited to only the embodiments illustrated in the drawings, because the drawings are merely utilized to illustrate one of the wide variety of uses of this invention.

3 Tab 36 has reinforcing means shown as curved flange means or an arcuate reinforcing flange 41. Flange 41 is provided in the outer periphery of tab 36 and preferably curves upwardly, i.e., away from top wall 23.

The arcuate configuration of flange 41 extends around practically the entire semicircular tab 36 as well as upwardly from the plane of such tab. Such arcuate configuration in two mutually perpendicular planes provides optimum stiffening while using a minimum amount of metal and space and enables a comparatively large force to be applied against rivet 31 to sever elongated strip 25 in a simple and efficient manner.

As will be apparent from FIGURES 3 and 4 of the drawings, such comparatively large opening force is directed generally from opening 38 in tab 36 toward the center of the finger receiving aperture 37 and flange 41 assures that a fairly large opening force may be exerted without elongating opening 38 or damaging pull device 26 in any way.

The finger receiving aperture means 37 of pull device 26 is defined by substantially cylindrical flange means or cylindrical flange 43 extending transversely, preferably substantially perpendicular, to planar surface portion 35 of pull device 26 and the inside surface of flange 43 provides a comparatively wide area bearing surface. Upon inserting a finger in aperture 37, the extended bearing surface provided by the inside surface of cylindrical flange 43 assures a comparatively large force can be exerted comfortably without injury to one's finger.

And particularly in FIGURE 7 of the drawings, pull ring means or device 26 is preferably made from metal sheet means and is formed substantially in one plane and extended circular flange 43 extends from main portion 35 perpendicular to such plane. The height, indicated at 45, of circular flange 43 is greater than the thickest metal sheet means adjoining the circular flange 43.

The substantially perpendicular cylindrical flange 43 provides a high strength stiffening effect for the entire pull device 26 while also holding the terminal inner end portion of such pull device away from top wall 23 of container 20 so as to enable an object, such as a fingernail, to be inserted thereunder and pull device 26 lifted to enable inserting of a finger through finger receiving aperture 37.

Thus, it is seen that upon pulling device 26 by applying a force in a direction substantially parallel to the elongated axis of tearout strip 25, such tearout strip is severed in an efficient and simple manner with flanges 41 and 43 providing maximum rigidity for device 26 while the inside surface of cylindrical flange 43 provides a comfortable bearing surface against which to pull upon inserting one's finger through aperture 37 defined thereby.

As seen particularly in FIGURE 9 of the drawings, the rivet means or rivet 31 is preferably formed as an integral part of top wall 23 in a known manner. The pull device 26 is placed so that opening 38 provided in its integral tab 36 is placed in surrounding relation to the uppermost portion of rivet 31 and such rivet is riveted in a known manner to form a head and thereby securely fasten device 26 in position to elongated strip 25.

The outwardly extending legs 30B of U-shaped score line 30 preferably slightly converge as they extend from their base portion outwardly toward their terminal outer ends. This slight converging effect provides a more efficient severing of elongated strip 25 while at the same time provides adequate width for the attached end portion 33 of strip 25 to enable the severed strip to be held securely.
attached adjacent the outer periphery of circular top wall 23 upon bending strip 25 downwardly along vertical side wall 21.

As seen in FIGURE 10 of the drawings, the depth of the U-shaped score 30 provided in top wall 23 is sufficient to enable easy severing yet not impair the structural integrity of such top wall during transportation and storage of the beverage contained within can 20.

To improve its structural rigidity top wall 23 has stiffening means, shown as a pair of stiffening ribs 51 designated by the numeral 51. Each rib 51 is arranged immediately adjacent and substantially parallel to an associated leg portion 30B of score line 30, whereby ribs 51 also slightly converge similar to leg portions 30B. Ribs 51 assure that wall 23 has adequate structural strength to enable severing of the comparatively wide strip 25.

The improved pull device 26 of this invention and the improved cylindrical container having such improved pull device may be formed of any suitable material; however, the top wall of such cylindrical container and such pull device 26 are both preferably made of metal containing aluminum because of the many desirable physical properties of aluminum, such as its light weight, high strength, and ease of forming.

As seen from the above description, the improved opening means of this invention enables severing of a comparitively wide strip from top wall means of a beverage can, for the like ease of dispensing the contents of such can thereafter. The severed strip is held attached to such top wall means to preclude the possibility of subsequent injury of the type which might occur in the event such strip were capable of being removed completely from the beverage can and discarded.

As used, such as "top", "bottom", "upwardly", and the like, have been used in this disclosure of the invention for ease of description and merely to correspond to the illustrations as presented in the drawings and such terms should be considered as limiting the scope of this invention in any way.

Thus, it is seen that an improved container means has been provided having improved opening means for severing an elongated strip from wall means comprising such container means wherein such severed strip is of comparatively large area and upon severing thereof is easily moved away from such dispensing opening while remaining attached thereto enabling easy dispensing of the contents of such container means therethrough.

Further, this invention provides improved pull ring means adapted to be used with opening means provided on container means, such as cans, of all types.

While the form of the invention now preferred has been disclosed as required by statute, other forms may be used, all coming within the scope of the claimed subject matter which follows.

What is claimed is:

1. Cylindrical container means having circular wall means provided with non-detachable opening means of improved structural strength said opening means including, elongated strip means defined in said wall means by substantially U-shaped score means having open end means and having rivet means fastened to one end portion adjacent base means of said U-shaped score means, said rivet means being adapted to be severed along its full length upon pulling against said rivet means while keeping its other end portion attached to said wall means adjacent said open end means, and pull ring means having means defining finger receiving aperture means and tab means extending outwardly of the outer periphery of said means defining finger receiving aperture means, said tab means having an opening therein adapted to be placed around said rivet means and having reinforcing means in the outer periphery thereof, said reinforcing means comprising curved flange means in said tab means adjoining said opening and extending approximately around one half of said opening on either side of an axis extending through the center of said aperture means and through the center of said opening, whereby said reinforcing means enables the application of a large force directed from said opening in said tab means toward the center of said aperture means while keeping said pull ring means substantially intact and thereby enables severing of comparatively wide strip means to define a dispensing opening for said container means and said attached end means enables said strip means to be bent away from said dispensing opening while being held to said wall means.

2. Container means as set forth in claim 1 in which said rivet means is formed as an integral part of said elongated strip means and said tab means has a thickness adjoining said opening therein greater than the effective thickness of said wall means to assure comparatively small width surface means of said tab means adjoining said opening retains its structural integrity upon pulling said pull ring means.

3. Container means as set forth in claim 2 in which said wall means comprises substantially circular wall means of cylindrical container means and said U-shaped score means is arranged in the central portion of said circular wall means so that its outwardly extending legs extend practically completely across said circular wall means while slightly converging from their base portions and are symmetrically arranged on opposite sides of a diameter of said circular wall means, whereby upon severing said elongated strip means it is easily bent at its attached end portion.

4. Pull ring means adapted to be fastened to rivet means provided in sevable opening strip means of container wall means, said pull ring means comprising, means defining finger receiving aperture means, tab means extending outwardly of the outer periphery of said means defining finger receiving aperture means, said tab means having an opening therein adapted to be placed around said rivet means, and reinforcing means in the outer periphery of said tab means to enable application of a large opening force directed from said opening toward the center of said aperture means while keeping said pull ring means substantially intact, said reinforcing means comprising curved flange means in said tab means adjoining said opening and curving away from a plane through the main part of said tab means while curving around the outer periphery thereof.

5. Pull ring means as set forth in claim 4 in which said tab means comprises substantially semicircular tab means and said curved flange means extends around practically the entire outer periphery of the semicircular tab means.

6. Pull ring means adapted to be fastened to rivet means provided in sevable opening strip means of container wall means, said pull ring means comprising, means defining finger receiving aperture means, tab means extending outwardly of the outer periphery of said means defining said finger receiving aperture means, said tab means having an opening therein adapted to be placed around said rivet means, and reinforcing means in the outer periphery of said tab means to enable application of a large opening force directed from said opening toward the center of said aperture means while keeping said pull ring means substantially intact, said reinforcing means comprising curved flange means in said tab means adjoining said opening, and said curved flange means extends approximately around one half of said opening on either side of a straight line through the center of said aperture means and through the center of said opening.

7. Pull ring means as set forth in claim 6 in which said means defining said finger receiving aperture means comprises substantially planar surface means having central finger receiving aperture provided therein and defined by cylindrical flange means extending transverse to said planar surface means and providing a bearing surface against which to bear a finger.
8. Pull ring means as set forth in claim 7 made from a single piece of sheet means wherein said cylindrical flange means defining said finger receiving aperture extends transverse to said planar surface means a distance greater than the thickness of said sheet means adjoining said cylindrical flange means.

9. Pull ring means as set forth in claim 8 in which the thickness thereof adjoining said opening is greater than the thickness adjoining said cylindrical flange means to assure the comparatively small width surface means adjoining said opening retains its structural integrity upon pulling said pull ring means.

10. In combination: an end closure for a container, said end closure comprising wall means having elongated strip means defined in said wall means by substantially U-shaped score means having open end means and having rivet means fastened to one end portion adjacent base means of said U-shaped score means, said strip means being adapted to be severed along its full length upon pulling against said rivet means while keeping its other end portion attached to said wall means adjacent said open end means, and pull ring means having means defining finger receiving aperture means and tab means extending outwardly of the outer periphery of said means defining finger receiving aperture means, said tab means having an opening therein adapted to be placed around said rivet means upon fastening said tab means to said rivet means and having reinforcing means in the outer periphery thereof, said reinforcing means in said pull ring means including curved flange means in its tab means adjoining said opening and extending approximately around one half of said opening on either side of an axis extending through the center of said aperture means and through the center of said opening, whereby said reinforcing means enables the application of a large force directed from said opening in said tab means toward the center of said aperture means while keeping said pull ring means substantially intact and thereby enables severing of comparatively wide strip means to define a dispensing opening for said container means and said attached end means enables said strip means to be bent away from said dispensing opening while being held to said wall means.

11. The combination as set forth in claim 10 in which said reinforcing means in said tab means comprises curved flange means in said tab means adjoining said opening.

12. The combination as set forth in claim 11 in which said tab means comprises substantially semicircular tab means and said curved flange means extends around practically the entire outer periphery of said semicircular tab means and has an arcuate configuration in two mutually perpendicular planes providing optimum stiffening.

13. The combination as set forth in claim 12 in which said means defining said finger receiving aperture means comprises substantially planar surface means having a central finger receiving aperture provided therein and defined by cylindrical flange means extending transverse to said planar surface means and providing a bearing surface against which to bear a finger.

14. The combination as set forth in claim 13 in which said pull ring means is made from a single piece of sheet means wherein said cylindrical flange means defining said finger receiving aperture extends transverse to said planar surface means a distance greater than the thickness of said sheet means adjoining said cylindrical flange means.

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