AEROSOL CAN PERFORATOR-GAS AND AIR RELEASER

Fig. 1

Fig. 2

Fig. 3

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A metal container including a hinged lid, wherein a peripheral panel of the container contains vent holes. An expanded aerosol can is placed within the container and after the lid is closed, a lever cam opening spur blade is depressed through a slot formed in the lid of the container thereby causing a gaseous content and puncturing the wall of the aerosol can. After release of residual gaseous content, the lid is lifted and the can is removed at which time it may be safely incinerated.

The field of the present invention relates to can openers and more particularly to the piercing of aerosol cans causing the release of residual gaseous contents therein.

A danger to life and limb currently exists when an expanded aerosol can is disposed within an incinerating apparatus. Upon application of incinerating heat, residual gas expands within the can until a point is reached which may cause the can to explode. Accordingly, it is a recommended practice to dispose of aerosol cans in a manner other than incineration. This disposition requires separation of aerosol cans thus necessitating an appropriation of significant storage facilities especially in industrial operations wherein a great number of such cans are used daily. It is evident that it would be highly advantageous for the consumer of such cans to have at his disposal a device which would release all residual gaseous contents from an aerosol can thereby rendering the same harmless and enabling the consumer to dispose of them in the same manner as the remainder of his trash.

In summary of the invention, a metal container is provided with a hinged lid. An aerosol can which has been expended is positioned within the container. A lever handle is mounted upon the top surface of the lid, the handle being integrally connected to a can opening blade protruding from the lid to pierce a slot in the lid of the container. To pierce the can, the lever is depressed until a spur portion of the blade pierces the wall of the aerosol can thereby resulting in a slow release of gas therefrom. Vent holes are provided in a peripheral portion of the container whereby distributing the exit of gas from the interior of the container. To dispose of the can, the handle is raised thus disengaging the blade from the can and then the lid is raised to provide access to the can. Accordingly, among the salient objects of the present invention are to provide:

A device for releasing the gaseous residue from an expended aerosol can;

A device for rendering an expended aerosol can harmless for purposes of incinerating the same;

A device which contains an expended aerosol can simultaneously with the puncture and piercing thereof.

The following objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIGURE 1 is a perspective view illustrating the lever handle in a can piercing position;

FIGURE 2 is a longitudinal sectional view along a plane passing through section line 2-2 of FIGURE 1; and

FIGURE 3 is a transverse sectional view along a plane through section line 3-3 of FIGURE 2.

In the preferred embodiment of the present invention and referring to the drawings, reference numeral 8 denotes an expanded aerosol can enclosed within a container fabricated from a suitably rigid material and denoted by reference numeral 10. The container as seen in FIGURE 1 of the drawings includes a top lid 12 to which is mounted a lever cutter 14 for effectuating can perforation as explained hereinafter. The container structure further includes a front panel 16 and a rear panel 18 located adjacent to the container. A fixed bottom panel 22 defines a base for the container. The front panel 16 of the container is provided with a plurality of apertures 24 formed there-through. The apertures are in horizontal linear alignment and are disposed at an upward vertical height equal to approximately three-quarters of the container depth. The lid 12 of the container is characterized by four edge portions which append downwardly to form a rectangular lip 26 overlapping the peripheral panels of the container.

As shown in FIGURE 3 of the drawing, the lip surface overlying the front panel 16 is characterized by rectangular serrations along the downward edge thereof which are rolled to form tubular loops 28. A metal plate 30 is fastened to the upper portion of front panel 16 in a manner orientating the plate 30 horizontally. The plate 30 includes rectangular serrations along the upper edge thereof which are rolled into tubular loops 29 and disposed adjacent the tubular loops 28. A pin 36 passed through the loops align the same coaxially thereby forming a piano hinge assembly 38. The latter mentioned plate 30 is fastened to the front panel by means of suitable fasteners 32.

As clearly seen in FIGURES 2 and 3 of the drawing, two rod-like members 40 are positioned in a horizontally spaced manner in overlying relation with respect to the bottom panel 22. The rods form a cradle for the aerosol can body 8. Each of the outwardly disposed ends of each rod 40 includes a rivet-type projection 42 for securing the rods within the end panels 20.

The lever cutter 14 includes a handle portion 44 normally positioned in a generally horizontal manner. An inverted generally V-shaped spur cutting blade is connected perpendicularly with the underside of the handle 44. The V-shaped blade 46 includes a shortened outwardly rounded arm 48. An aperture 50 is formed within the central portion of this arm to permit rotation thereof as explained hereinafter. The outwardly rounded edge portion 52 of this arm is more particularly characterized by a semi-circular shape. The opposite arm 54 of the V-shaped blade is elongated and terminates in a spur cutting portion with a pointed tip 56. The edges of the spur cutting blade 54 are sharpened to form a knife edge 57.

As illustrated in FIGURE 1, an elongated cutter guide or track 58 characterized by a generally U-shaped cross-section is fastened atop the lid 12 by means of a suitable attachment between the outward guide bight surface 60 and the top surface of the lid. The guide 58 includes front and rear bearing plates 62 which terminate in a rounded manner as shown by reference numeral 64. The right end of guide 58 provides a mechanical stop for the overlying bottom surface of handle 44 when the handle is raised to approximately forty-five degrees. An upper intermediate length of each bearing plate 62 includes an aperture 66 through which the pins 68 are formed. The apertures 68 are transversely and horizontally aligned. The V-shaped blade 46 is positioned between
the front and rear bearing plates 62. The aperture 50 in the blade 46 is aligned with the apertures 68 of the bearing plates. A rivet 69 is passed through the aligned holes thereby providing a pivotal axis for the lever cutter 14.

As shown in FIGURE 2 of the drawing, a slot 70 is formed within the right portion 60 of the guide 58, the slot extends downwardly through the lid 12 of the container.

In actual operation of the device, reference is made to FIGURE 3 of the drawing. It is appreciated that originally the hinged lid is opened as shown in phantom thereby rendering access to the interior of the container. An aerosol can is inserted within the container and made to rest upon the rods 40. The lid is then rotated to a closed position. The lever cutter resides in an upwardly inclined position as shown in phantom in FIGURE 2. To puncture the can, the lever is grasped by a hand and depressed until the point portion of the spur cutting blade punctures the aerosol can thereby permitting slow release of the can's gaseous contents. To accelerate the release process, the handle is further depressed thus slitting the can and forming a larger exit therein. The gaseous discharge will exit from the container by means of the vent holes or apertures formed within the front panel.

As will be further appreciated, discharge of the gas contained within the can will cause a commensurate discharge of any residual material therein. The discharge of this material will be directed against the interior surface of the lid portion 12 thus rendering the discharge harmful to the user. To remove the pierced can from the container, the lever cutter is raised upwardly thereby disengaging the same with the can body. The undersurface of the container lid provides a means of restraining the can within the container interior while the blade is being extracted from the can body. After disengagement of the blade from the can, the lid is raised and rotated backwardly to the open position. The can may then be removed from the container and disposed of in a convenient manner including incineration.

In order to retain the lid in a closed position, a suitable latch mechanism is provided, an example of which is shown in FIGURE 3. A bolt or latch 72 is secured within an aperture 74 located within the lid lip portion 26, opposite the hinge 38. The head of the bolt is rounded and protrudes slightly from the inward surface of the lip and is received by the latch keeper or aperture 76, the latter being formed within the peripheral panel 18. The outward end of the bolt is secured within a knob 78. Slight pressure exerted upon the knob 78 causes the lip to yield a sufficient amount to permit retraction of the latch from the keeper. Upon closing the lid, the latch snaps into the keeper when they become aligned.

To extend the portability of the container, a suitable handle may be fastened to an exterior surface as desired. Such a handle increases the convenience of the container when a consumer wishes to transport the same from one location to another.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. An aerosol can cutting device comprising a housing, means for supporting a can in the housing in a pre-selected position, means for venting the housing, means for controllably cutting the can thereby permitting regulated discharge of residual gas from the can, a lever mounted on the housing, a slot formed in the housing to permit displacement of the cutting means through the slot, the cutting means including a spur-shaped blade connected to the lever, the blade being characterized by an outwardly contoured arcuate knife edge terminating at one end thereof in a point, the knife edge being adapted for cutting a slit of selectable dimension in the can, the escape of residual gas being regulated during a slitting process, a second blade edge oppositely disposed from the knife edge and extending from the point along an acutely inward contour to facilitate the cutting action of the blade, the blade further having a body portion oppositely disposed from the point, the blade body being connected to the lever for permitting manual manipulation of the blade.

2. The device as set forth in claim 1 wherein the housing comprises a polygonal container, including an openable lid portion, and wherein said means for venting the housing includes a plurality of apertures formed within a peripheral panel of the housing.

3. The device as set forth in claim 1 wherein the means for supporting a can in a pre-selected position comprises a pair of parallel spaced rods longitudinally extending between transverse ends of the housing, the rods further overlying the bottom panel of the housing, said rods adapted to cradle the cylindrical wall of a can.

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