A device for opening a beverage can to allow a beverage to flow out while also restricting access of insects to the can’s interior. The device comprises a collar, configured to receive the top or bottom of a beverage can, and a blade holder, that is moved relative to the collar to allow blades to penetrate the beverage can within the collar and form at least two slits in the can.
BEVERAGE CAN OPENING DEVICE AND METHOD

RELATED APPLICATIONS

[0001] This application claims the benefit of the filing date of the provisional patent application serial No. 60/411,995, filed on Sep. 19, 2002.

FIELD OF THE INVENTION

[0002] The present invention relates to a device for opening beverage cans, and more particularly, to a device that reduces the probability that a dangerous insect can get inside of the opened can.

BACKGROUND OF THE INVENTION

[0003] Since the early 1990’s beverage can manufacturers have changed the configuration of the opening in beverage cans. The openings have evolved from removable pull-tabs to pivoting attached tabs and more recently to wide mouth attached tabs. As the openings have gotten larger, the probability has increased for a bug, such as a bee, wasp or hornet, to get inside the can. An unseen bug inside the can presents a danger to the unsuspecting drinker. Every summer hundreds of thousands of individuals are stung by wasps, hornets and bees, many of these insects lurking within a beverage can because of the insect’s attraction to the contents of the can. Each year, over 85,000 Americans seek medical treatment for allergic reactions to insect stings and at least fifty of them die.

[0004] Beverage cans also pose a risk of injury to small children who cut their tongues in the prefabricated opening of beverage cans. The fabricated can openings are sharp and result in hundreds of injuries each year. Many of the injuries are minor, however, in recent years, countless lawsuits have been filed on behalf of children who have lacerated or cut off a portion of their tongues on the sharp opening.

[0005] Modern beverage cans are highly sophisticated pressure vessels, generally manufactured out of aluminum or other metal. The desire of manufacturers to reduce the amount of metal per can has been a driving force in the design of a near egg shell like can, i.e., one having very thin walls. A metallic beverage can relays greatly on the pressure of its contents for strength. Once the can’s hull is compromised and the pressure is released, a metallic beverage can becomes very fragile and will crush or distort under moderate pressure. Almost any puncher to the can’s configuration immediately releases its inner pressure and reduces the can’s ability to hold its form.

[0006] Beverage can holders with lids, which could arguably be used to safeguard open cans from insects, are generally known. For example various types of these devices have been described in U.S. Pat. Nos. 4,690,300; 4,735,333; 5,139,163; 5,609,277; 5,657,957; 6,000,262; 6,200,223; 6,244,461.

[0007] While the structural arrangements of the devices described in the above listed patents, at first appearance, have similarities with the present invention, they differ in material respects. In particular, none of the referenced devices modify the can in a manner that restricts the access of bugs, nor do the devices allow a beverage can to be used independently of the device for intermittent drinking.

SUMMARY OF THE INVENTION

[0008] In view of the foregoing disadvantages of the prior art devices for limiting the access of insects into opened beverage cans, there exists a need for a device to open beverage cans, without crushing the can, that does not rely on the manufacturer's opening. Thus, one object of the present invention is to provide a device and method for opening a beverage can that will reduce the chance that an insect could enter a beverage can and injure the individual drinking from the can.

[0009] A second object of the invention is to provide a device for opening beverage cans that will reduce the chance that a person small child will cut his or her tongue on a sharp can opening.

[0010] Because of the fragile nature of beverage cans, the blades of the can opening device of the present invention operate to puncture the can virtually simultaneously. If a first blade punctures the can before the second blade does so, the can may lose its stability and crush or deform under the force of the second blade. The can's pressurized contents may also rapidly exit through the opening made by the second blade and cause the person opening the can to become covered with the contents of the can.

[0011] The present invention has a collar that fits around a beverage can. The collar is configured to allow a beverage can to be inserted but not pass through. This configuration allows the device to rest on the can's top or bottom lip and at the same time stabilize the can within the collar.

[0012] The present invention also has a blade holder that can move relative to the collar. The blade holder is attached by a hinge or other configuration that allows the blade holder to pivot with respect to the collar. The blade holder could also be pressed towards the collar by hand or other simple machine. In an alternative embodiment, the blade holder could be held stationary and the collar securing the can could be moved towards the blade holder. In a further embodiment, a person's hand could act as the collar and blade holder would move relative to the person's hand.

[0013] Attached to the blade holder are at least two blades. The blades have points to pierce the beverage can held within the collar. The blades also have cutting edges that create slits in the can as the points of the blades are moved into the can.

[0014] As the device's blade holder is moved relative to the collar, the blades penetrate the upper opening of the collar and pierce a beverage can placed within the collar. The blade holder can then be moved away from the collar, removing the blades from the beverage can and leaving behind at least two slits.

[0015] The slits left behind by the blades are thin enough to restrict the access of most insects to the can's interior. The slits are also wide enough to allow the can's contents to flow out of the can smoothly. The slits do not need to be identical in dimension and one slit could be solely for drinking and the other slit could be solely for pressure regulation while drinking. Although not required, having similar slit dimensions allows for the most versatile use of the beverage can.

[0016] The objects of the invention, along with various features of novelty that characterize this invention, are pointed out with particularity in the claims annexed hereto.
and form part of this disclosure. For a better understanding of this invention, its operating advantages and specific objects attained by its use, reference should be had to the accompanying drawings and descriptive matter in which there is illustrated a preferred embodiment of this version of the invention.

BRIEF DESCRIPTION OF DRAWINGS

[0017] FIG. 1 illustrates a side view of one embodiment of the can opening device.

[0018] FIG. 2 illustrates a cross-section of the can opening device of FIG. 1.

[0019] FIG. 3 illustrates a bottom view of the blade holder.

[0020] FIG. 4 illustrates a side view of the blade holder.

[0021] FIG. 5 illustrates a top view of the collar.

[0022] FIG. 6 illustrates another embodiment of the can opening device.

[0023] FIG. 7 illustrates a cross-section of the can opening device shown in FIG. 6.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0024] Illustrated in the FIGURES is beverage can opening device 8.

[0025] As shown in FIG. 1, the can opening device 8 includes a collar 10 (also shown in FIGS. 2 and 5), a hinge 12 (also shown in FIGS. 2, 3 and 5), a blade holder 13 (also shown in FIGS. 2, 3 and 4), and a set of blades 14a and 14b (shown in FIGS. 3 and 4).

[0026] The operation of the device is simple. The collar 10 is placed upon a beverage can. Force is applied to the blade holder 13 and it is rotated towards the collar and beverage can. As the blade holder 13 is rotated, the blades 14a and 14b will contact the beverage can held within the collar 13. The points 17 of the blades will pierce the beverage can and continue into the can. After the points 17 pierce the beverage can, the cutting surfaces 15 and 16 of the blades 14a and 14b will form slits in the beverage can. The blade holder is then rotated in the opposite direction removing the blades 14a and 14b from the beverage can. The collar is then removed from the beverage can and the can is ready to drink from.

[0027] Blades 14a and 14b each have two adjacent cutting surfaces, 15 and 16, that come to a point 17. The blades also have a penetration stop 18 (without a cutting edge) that prevents pivotal motion of the blade holder when the stop 18 meets the top of the beverage can (unless a much greater force is applied to continue to pivot the blade holder towards the beverage can).

[0028] In the preferred embodiment, the blades 14a and 14b are made of metal and the collar 10 and blade holder 13 are made from plastic. The components could instead be made from various materials such as metal, plastic, or ceramic. The collar and blade holder do not need to be made of the same material. The collar has an upper orifice 22 and a lower orifice 19.

[0029] The cross-sectional views of FIG. 1 and FIG. 2 illustrate the different diameters of the collar’s upper and lower orifices. The lower orifice 19 has a diameter 20 that is slightly larger than the diameter of a beverage can. The upper orifice 22 has a diameter 21 that is smaller than the diameter of a beverage can 23. The orifice 22 is large enough to allow the blades 14a and 14b to pass through. The blades each have a height (h), and a width (w), shown in FIG. 2, and a thickness (t), shown in FIG. 4.

[0030] In the preferred embodiment, lower orifice 19 is large enough to securely receive a beverage can, and upper orifice 22 is narrow enough to restrict the can from passing through the collar 10. As shown in FIG. 2, when placed on a beverage can, the collar secures one end of the beverage can. Either end of the beverage can could be placed within the collar and opened with the present invention.

[0031] In the preferred embodiment, the two blades 14a and 14b are configured to produce two slits in the can that are approximately one inch by an eighth of an inch. Of course, blades of various sizes can also be used, as can a different number of blades.

[0032] FIG. 3 is a bottom view of the blade holder 13 and blades 14a and 14b. In FIG. 3 the blades are formed from a single piece that is molded into the blade holder. This is the preferred embodiment of the blades. Alternatively, the blades could be attached individually and at different positions, as long as the blades travel within the upper orifice of the collar when the blade holder is pivoted towards the collar.

[0033] The blades 14a and 14b can be attached to the blade holder in many different ways. They can be affixed using a fastener, they can be molded into the blade holder, they can be molded from the same material as the holder, they can be welded or glued to the blade holder, or they also could be stamped out of the blade holder itself if the holder was made of metal.

[0034] Collar 10 includes a molded hinge portion 52, and blade holder 13 includes a molded hinge portion 54. Hinge pin 31 is used to connect the molded hinge portions. When the hinge portions 52, 54 on the respective parts are pinned together, the blade holder 13 can smoothly pivot with respect to the collar 10. Although the hinge portions shown in FIGS. 1-5 are integrally molded to the corresponding parts, alternatively, a separate hinge could be fastened to the parts.

[0035] The blade holder 13 is preferably larger then the upper orifice of the collar to protect a person opening a can from the contents of the can that may be expelled when using the device.

[0036] FIG. 4 is a side view of the blade holder 13. FIG. 4 along with FIGS. 2 and 3 illustrate the two adjacent cutting surfaces 15 and 16, and dimension (t), the thickness of the blade.

[0037] The two adjacent cutting surfaces allow the blades to cut slits perpendicular to the pivot axis (i.e., along hinge 12). In the preferred embodiment, each blade is one eighth inch thick (t), at least one inch high (h) and one inch wide (w). As the blade holder is pivoted and the blades are brought into contact with a can secured within the collar, the points of the blades will penetrate the can’s surface and continue to rotate about the pivot axis into the interior of the can. The cutting surfaces of each blade will spread the initial punctures into parallel slits.
Because the blades are fixed with respect to the pivot axis between the collar and blade holder, a blade's configuration will vary depending on its position relative to the pivot axis and relative to the other blade. In the preferred embodiment, the blades are positioned along the blade holder in a manner that would allow the blades' points to penetrate the can virtually simultaneously and at an equal distance from the pivot axis.

In the preferred embodiment, the blades are congruent and at least an inch and a quarter apart. This configuration allows the blades to penetrate a can without interference with the tab of the can. Various other blade spacings are also envisioned.

FIG. 5 is a top view of the collar 10. Diameter 20 only needs to be slightly smaller than diameter 21 in order to stabilize the device on the lip of a beverage can.

In the preferred embodiment, the diameter 20 is approximately two and five eighth inches in diameter. Diameter 21 is greater or equal to one and three quarter inches and less than or equal to two and one half inches.

Illustrated in FIGS. 6 and 7 is an alternative embodiment of a beverage can opening device 58.

As shown in FIG. 6, the can opening device 58 includes a collar 60, blade holder 63, and a set of blades 64 (only one blade shown).

The operation of the device is simple. The collar 60 is placed upon a beverage can 61. Force is applied to the blade holder 63 to move the holder towards the collar 60 and the beverage can 61. As the blade holder 63 is moved towards the collar 60, the blades 64 contact the beverage can held within the collar 63. The points 67 of the blades will pierce the beverage can and continue into the can. After the points 67 pierce the beverage can, the cutting surfaces 71 and 72 of the blades 64 will form slits in the beverage can. The blade holder is then moved in the opposite direction removing the blades 64 from the beverage can. The collar 60 is then removed from the beverage can and the can is ready to drink from.

Blades 64 each have two adjacent cutting surfaces, 71 and 72, that come to a point at 67. The blades also have a penetration stop 68 (without a cutting edge) that prevents motion towards the collar of the blade holder when the stops 68 meet the top of the beverage can.

FIG. 7, a cross-sectional view of the can opening device shown in FIG. 6, illustrates the different diameters of the collar's upper and lower orifices. The orifice configurations are the same as in FIGS. 2 and 5 above. The blades are also similar to the blades illustrated in the previously described embodiment, and are also configured to produce two slits. Likewise, blades 64 can be attached as described above.

The alternative embodiment illustrated in FIGS. 6 and 7 operates in much the same way as the preferred embodiment, except that the collar and blade holder may or may not be operably attached to each other. As shown in FIGS. 6 and 7, the blade holder moves independently of the collar. Similar to the preferred embodiment, as blade holder is moved towards the collar, the blades are brought into contact with a can secured within the collar, and the points of the blades penetrate the can's surface into the interior of the can. The cutting surfaces of each blade spread the initial punctures into slits.

Because the blades are not fixed with respect to the collar, a blade's configuration can vary, creating different shaped slits in countless positions. Curved blades and spikes could be used to create the openings.

What is claimed:

1. A beverage can opening device comprising:
   a. a collar, having an upper and a lower orifice, wherein the lower orifice is capable of receiving a cylindrical beverage can,
   b. a blade holder, having a top and a bottom surface, and pivotably attached to the collar;
   c. two blades affixed to the bottom surface of the blade holder; said blades being affixed along the bottom surface of the holder in a manner that allows the blades to penetrate the upper orifice of the collar when the blade holder is pivoted with respect to the collar to thereby produce openings in the beverage can.

2. The device of claim 1 wherein said blades are aligned so that the blades penetrate the upper orifice simultaneously when the blade holder is pivoted towards the upper orifice of the collar.

3. The device of claim 1 wherein the lower collar orifice is cylindrical and has a diameter that is slightly greater than the diameter of a beverage can and the upper collar orifice is cylindrical and has a diameter that is slightly less than the diameter of a beverage can.

4. The device of claim 1 wherein at least one blade is at least one eighth inch wide.

5. The device of claim 1 wherein the blades each have a top cutting surface and an adjacent side cutting surface, the top cutting surface being downwardly angled towards the blade holder and away from the side cutting surface.

6. The device of claim 1 wherein the blade holder and collar are attached by a hinge.

7. The device of claim 1 wherein each blade is formed from a single piece of metal.

8. The device of claim 1 wherein the blades are integrally formed into the blade holder.

9. The device of claim 2 wherein each blade is at least one eighth inch wide.

10. The device of claim 2 wherein the blades are of identical configuration.

11. The device of claim 2 wherein the blades are parallel to each other at a distance apart that is greater than the width of the tab of the beverage can.

12. The device of claim 2 wherein the blades are parallel to each other at a to distance apart that is greater than five eighths of an inch and less than one and three quarter inches.

13. The device of claim 11 wherein the center point between the two parallel blades is aligned with the center point of the upper orifice of the collar when the blade holder and collar are parallel and facing each other.

14. A method of opening a cylindrical beverage can, having an upper surface, comprising the steps of:
   a. securing the beverage can within a collar in a manner that allows access to the can's upper surface;
   b. piercing the can's upper surface simultaneously with a set of blades;
c. applying pressure to the blades until slits are formed in the can's upper surface; and

d. removing the blades from the slits.

15 A beverage can opening device comprising:

a collar, having an upper and a lower orifice, wherein the lower orifice is capable of receiving a top or bottom portion of a cylindrical beverage can;

a blade holder, having a top and a bottom surface, and movable relative to the collar;

two blades affixed perpendicularly to the bottom surface of the blade holder;

said blades being affixed along the bottom surface of the holder in a manner that allows the blades to penetrate the upper orifice of the collar when the upper orifice of the collar and the bottom surface of the blade holder are parallel and facing each other; and said blades having edge configurations capable of piercing a beverage can.

16 The device of claim 15 wherein said blades are aligned so that the blades penetrate the upper orifice simultaneously when the blade holder is moved towards the upper orifice of the collar.

17. The device of claim 15 wherein the lower collar orifice is slightly greater than the diameter of a beverage can and the upper collar orifice is slightly less than the diameter of a beverage can.

18. The device of claim 15 wherein the collar is a person's hand.

19. The device of claim 15 wherein the blades have two adjacent cutting surfaces both being downwardly angled towards the blade holder and form a common point.

20. The device of claim 15 wherein at least one of the blades is a spike.

21. The device of claim 15 wherein at least one blade is curved.

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