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MEANS FOR OPENING CANS

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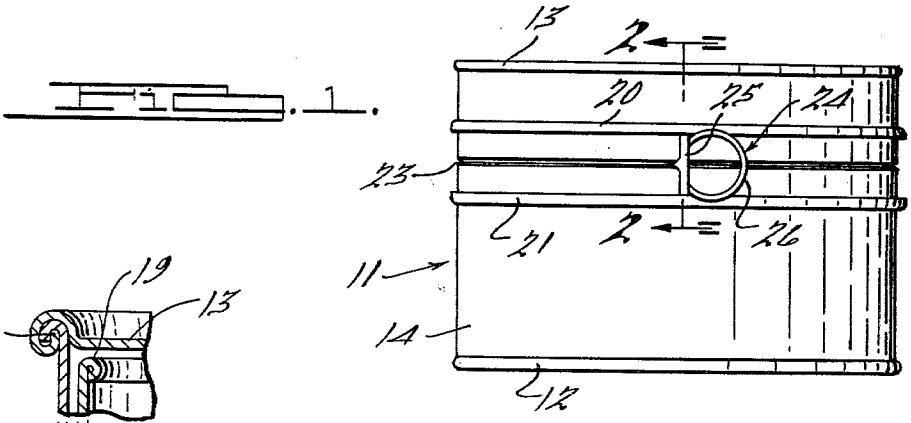


FIG. 1.

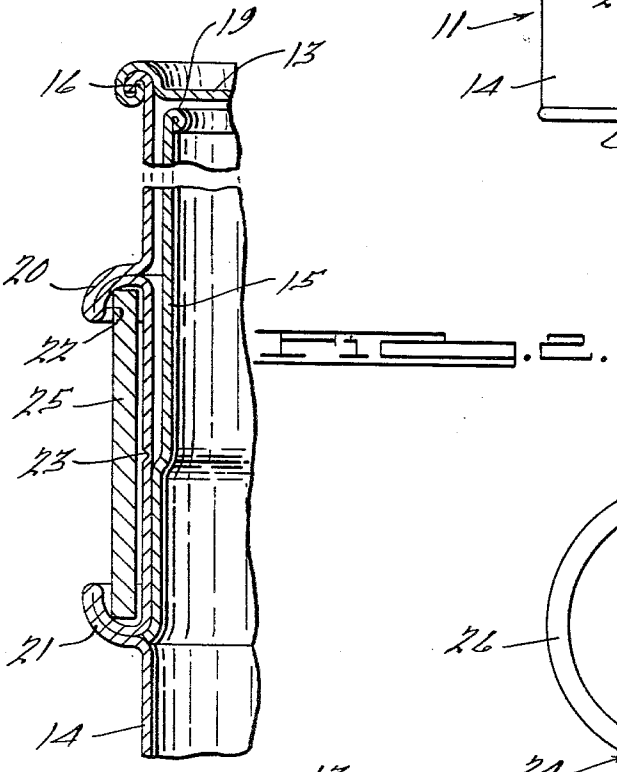


FIG. 2.

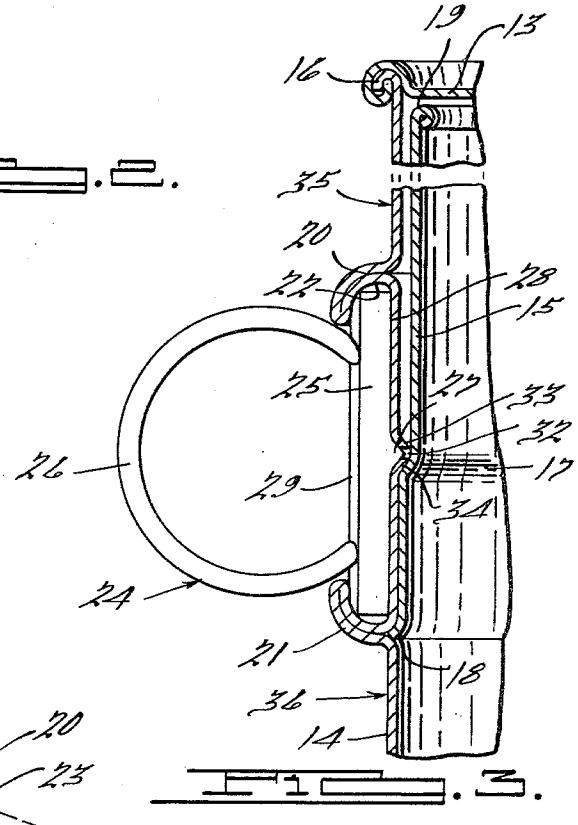


FIG. 3.

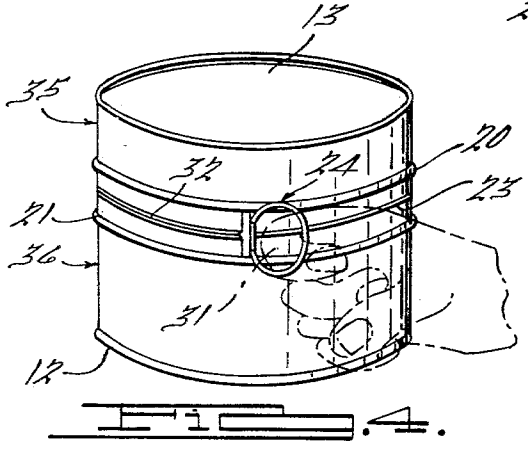


FIG. 4.

INVENTOR.
Harold W. Imerman
BY
Harness, Dickey & Pierce
ATTORNEYS.

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MEANS FOR OPENING CANS

Harold W. Imerman, 18459 Sorrento Ave., Detroit, Mich.

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9 Claims. (Cl. 220—48)

This invention relates to means for opening cans, and more particularly to manual key-type openers such as those attached to indivdual coffee or other household cans.

It is an object of the invention to provide a novel and improved can opening means which is quick and easy to operate and eliminates the need for first detaching the key from a separate location on a can and then reapplying it for opening purposes.

It is another object to provide an improved can opening means of this character which is especially adapted for hermetically sealed cans and will form a smooth lip on the lid which will interfit closely with the can rim after opening, thus providing protection for the can contents during continued use.

It is a further object to provide an improved can opening means having these characteristics, which will automatically maintain alignment of the key with the parting line of the metal during the cutting operation, thus eliminating the need for careful manipulation which ordinary twist-type keys require.

It is also an object to provide an improved can opening means of this nature in which there is no waste metal, and the key may be easily disposed of after use.

Other objects, features, and advantages of the present invention will become apparent from the subsequent description, taken in conjunction with the accompanying drawings, in which:

FIGURE 1 is a side elevational view of a can incorporating the novel opening means of this invention, the key being shown in its folded position before cutting;

FIGURE 2 is an enlarged fragmentary cross-sectional view taken on the line 2—2 of FIGURE 1 and showing the configuration of the key tracks and the shape of the can metal before cutting;

FIGURE 3 is a view similar to FIGURE 2 but with the key swung to its cutting position, showing the manner in which the cutting point penetrates the scored portion of the metal; and

FIGURE 4 is a perspective view showing the position of the user's hand as the key is pulled along the tracks during the opening process.

In general terms, the illustrated embodiment of the invention comprises a can of cylindrical shape generally constructed like conventional hermetically sealed one-pound coffee cans, with the cylindrical portions of both the body and lid being formed by a single shell of sheet metal, and a rim secured within the upper portion of the shell. A pair of parallel facing tracks are formed on the upper portion of the shell, the tracks extending continuously around the shell and being formed by doubling the sheet metal thereof. A key is provided in the form of a flat bar extending between and retained within the tracks and a finger ring mounted on the bar, the bar having a point which will penetrate a scored line between the tracks when the key is swung from a folded to a cutting position. The key may be pulled around the can, the point cutting the scored line until the lid portion of

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the shell becomes separated from the body portion. The key may then be removed and discarded, and the lower edge of the lid will interfit with the rim as well as the upper edge of the body when the can is closed.

Referring more particularly to the drawings, a can incorporating the invention is generally indicated at **11** and comprises a bottom **12**, a top **13**, a shell **14** and a rim **15**, these parts being formed of appropriately treated sheet metal. Shell **14** is of cylindrical shape, and bottom **12** and top **13** are hermetically secured thereto by beads such as that indicated at **16** in FIGURES 2 and 3. Rim **15** is disposed within the upper portion of shell **14** and is also of generally cylindrical shape, having a slight indentation **17** at an intermediate portion thereof, and outer retaining bend **18** at the lower edge, and a bead **19** at the upper edge. Bead **19** is spaced a slight distance below top **13**, for reasons which will hereinafter appear.

An upper track **20** and a lower track **21** are formed on shell **14** at the upper portion thereof. Each track is formed by doubling the sheet metal of the shell, and has a hook-shaped cross-sectional configuration as seen in FIGURES 2 and 3, the concave or retaining surfaces **22** of the track facing each other. Outturned lower edge **18** of rim **15** is received by the groove formed at the base of track **21**, so that rim **15** is retained against vertical movement.

A scored portion **23** is formed in the outer surface of shell **14** midway between tracks **20** and **21**, the cross section of the metal being reduced in this area and thereby weakened. The position of scored line **23** is opposite the indentation **17** in rim **15**, and the diameter of the rim is slightly less above indentation **17** than it is below.

A key generally indicated at **24** is provided, the key having a construction shown best in FIGURES 1 and 3. Key **24** comprises a narrow bar **25** and a grasping ring **26** secured to bar **25** and extending to one side thereof. Bar **25** has a generally rectangular cross-sectional shape, the section being narrower in one direction than the other. When key **24** is in its folded position, as seen in FIGURES 1 and 2, the narrower dimension of the bar cross section will be approximately radially aligned with respect to the can; this cross-sectional thickness is seen in FIGURE 2. When key **24** is swung to its cutting position as seen in FIGURE 3, the wider sectional dimension of bar **25** will be approximately radially disposed with respect to can **11**, as seen in FIGURE 3, or at least so inclined that the bar ends occupy substantially more space within the tracks than when the key is folded.

The length of bar **25** is such that it will be retained by tracks **20** and **21** when vertically disposed. A cutting point **27** is formed at the midpoint of the edge **28** of bar **25** opposite the edge **29** to which ring **26** is secured. The position of point **27** is opposite scored line **23**, and the size of bar **25** is such that when it is swung to a cutting position such as shown in FIGURES 3 and 4, point **27** will be forced into scored line **23** and penetrate the metal of shell **14**, tracks **20** and **21** retaining bar **25** against outward movement due to the fact that the bar ends will fully occupy the spaces between the outer ends of the tracks and the main surface of the shell.

Ring **26** is of C-shaped construction, its ends being secured to edge **29** of bar **25**, with the size of the ring being sufficient to permit entry of a finger **31** of the user's hand. When in the folded position, as seen in FIGURE

1, ring 26 may overlap tracks 20 and 21, thereby creating a slight space between the central ring portion and the can so that finger 31 may be slipped under the ring.

In operation, finger 31 of the user will grasp ring 26 and rotate key 24 from the folded position of FIGURE 1 to the cutting position of FIGURES 3 or 4. In doing so, point 27 will be forced into scored line 23 and pierce shell 14, slightly separating the lid and body portions of the shell as indicated by the space having the reference numeral 32 in FIGURE 3. Inturned lips 33 and 34 immediately above and below space 32 respectively, may be formed by point 27, it being noted that identation 17 of rim 15 will permit this slight bending to take place. Key 24 may then be pulled around the entire periphery of can 11 and as this is done, point 27 will create a continuous cut at scored line 23, completely severing the portion of shell 14 above scored line 23 from that below the scored line. This will in effect create a can lid generally indicated at 35 and a body generally indicated at 36 in FIGURE 3. Lid 35 will consist of the upper portion of shell 14 and top 13, whereas body 36 will consist of the lower portion of shell 14, bottom 12 and rim 15.

It should be observed that key 24 need not necessarily be rotated until the wider sectional dimension of bar 25 extends exactly radially with respect to can 11 in order that complete penetration of shell 14 by point 27 be obtained; nor it is necessarily true that key 24 need be maintained in such a radial position while it is pulled around can 11. By varying the angular position of key 24 with respect to a radial plane passing through the can, the frictional drag of tracks 20 and 21 on bar 25 which counteracts the pulling force exerted by the operator's finger 31 may be minimized, while still obtaining the necessary penetration of shell 14 by point 27. The shape of point 27 may also be varied to permit choice of an optimum pulling angle, such as is illustrated in FIGURE 4.

After the cut has been completed, lid 35 may be lifted from body 36 by merely sliding it upwardly above rim 15. If necessary, key 24 may be rotated back to its folded position before lifting lid 35 so that its frictional contact with tracks 20 and 21 will not interfere with opening of the can. When the can is opened, key 24 will drop from the tracks or may be easily removed therefrom and discarded.

To reclose the can, lid 35 need merely be slipped down on rim 15 until lip 33 engages lip 34. It should be noted that there will be a close fit between lip 33 and the outer surface of rim 15, and that the slight space previously provided between bead 19 of rim 15 and top 13 will permit lid 35 to be moved down until lip 33 engages lip 34. A relatively tight seal will thus be automatically provided for the duration of use of can 11. This will be of value in preserving the freshness of food such as coffee which may be contained in the can. It should also be observed that there will be no waste metal to be discarded, and that key 24 need not be removed from another part of the can before using, but will be immediately available when opening is required.

While it will be apparent that the preferred embodiment of the invention disclosed is well calculated to fulfill the objects above stated, it will be appreciated that the invention is susceptible to modification, variation and change without departing from the proper scope or fair meaning of the subjoined claims.

What is claimed is:

1. In combination, a sheet metal can, a pair of spaced parallel tracks on the outside of said can, a key comprising a bar retained by said tracks, a grasping portion on said key, the key being rotatable by means of said grasping portion about an axis extending parallel to said bar between a folded position and a cutting position, and a cutting portion on said key, the bar being so proportioned with respect to said tracks that said cutting portion will penetrate said shell in response to rotation of said key from its folded position to its cutting position.

2. In combination, a sheet metal can having a cylindrical shell and a top and a bottom secured to said shell, track means on the outside of said shell extending around the periphery thereof, a key slidably mounted in said track means and movable from a folded position to a cutting position, a cutting portion on said key, and coacting surfaces on said track means and said key responsive to movement of said key from its folded to its cutting position for causing said cutting portion to penetrate said shell and for maintaining said cutting portion in cutting engagement with said shell with said key in said cutting position as said key is moved along said track means.

3. In combination, a sheet metal can have a cylindrical shell and a top and a bottom secured to said shell, a cylindrical rim secured to the inside of said shell adjacent said top, a pair of spaced parallel tracks formed on the outside of said shell substantially at the level of said rim, a scored line extending around the outside of said shell between said tracks, a key comprising a bar having end portions disposed within said tracks and an intermediate cutting portion, a handle extending outwardly from said bar, the bar being swingable by said handle from a folded position to a cutting position, and coacting surfaces on said tracks and bar ends responsive to swinging of said bar to its cutting position for forcing said cutting portion into said scored line to penetrate said shell.

4. The combination according to claim 3, said rim having a lower portion fitting tightly within said shell and an upper portion spaced slightly inwardly from said shell, the rim being formed with an indentation connecting said portions at the level of said scored line.

5. The combination according to claim 3, each of said tracks being of hook-shaped cross section with the concave track surfaces facing each other, the tracks being formed by folds in the sheet metal of said shell.

6. The combination according to claim 3, said bar being of generally rectangular cross-sectional shape with the narrower dimension of said cross section being approximately radially disposed with respect to said can when the key is in its folded position.

7. In combination, a sheet metal can having a cylindrical shell and a top and bottom secured to said shell, an upper and a lower track formed at the upper portion of said shell, each track having a hook-shaped cross section and being formed by doubling the sheet metal of said shell, the concave surfaces of said tracks facing each other, the tracks being in spaced parallel relation and extending around the periphery of said can, a scored portion on the outer surface of said shell between said tracks, a generally cylindrical sheet metal rim secured within the upper portion of said shell, the lower portion of said rim being in engagement with the inner surface of said shell, the upper portion of said rim being spaced slightly inwardly from said shell, an annular indentation in said rim at the level of said scored portion and forming the connection between said upper and lower rim portions, a key comprisng a bar having its ends disposed within the confines of said tracks, a cutting point on an intermediate portion of one edge of said bar, and a handle secured to the opposite edge of said bar and extending outwardly therefrom, the key being swingable about an axis parallel to said bar between a folded position in which said handle rests against said tracks and a cutting position in which said handle is swung outwardly from said tracks, the proportions of said bar ends relative to said tracks being such that movement of said key to its cutting position will cause said cutting point to penetrate said scored line.

8. In combination, a container having a cylindrical shell surface and a top surface and a bottom surface secured to said shell surface, track means on one of said surfaces, a key slidably mounted in said track means and movable from a folded position to a cutting position, a cutting portion in said key, and coacting surfaces on said track means and said key responsive to movement of

said key from its folded to its cutting position for causing said cutting portion to penetrate through said one of said surfaces and for maintaining said cutting portion in cutting engagement with said one of said surfaces with said key in said cutting position as said key is moved along said track means.

9. In combination, a container having a cylindrical shell surface and a top surface and a bottom surface secured to said shell surface, track means on one of said surfaces, a scored line in said one of said surfaces extending parallelly relative to said track means, a key slidably mounted in said track means and movable from a folded position to a cutting position, a cutting portion on said key, and coacting surfaces on said track means and said key responsive to movement of said key from its folded to its cutting position for causing said cutting portion to engage said scored line and to penetrate through said one of said surfaces and for maintaining said cutting portion in cutting engagement with said one of said surfaces at said scored line with said key in said cutting position as said key is moved along said track means.

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