

Method for Providing Marking on the Pull Tab of a Can End**Field of Invention**

5 The present invention relates to a method for can-making, particularly the top end of the can. Specifically, it relates to a method for providing the can end's pull tab with a marking, such as a logo stamped thereon, for promotional and decoration purposes, proof of purchase, product genuineness and the like, on cans, including beverage can ends.

10 Background to the Invention

The conventional system for using can products, such as food and beverages cans, to provide a message, advertise or decorate on can end's pull tab is by printing, embossing or etching picture or logo on the can end's pull tab. The process to provide the logo on the can end's
15 pull tab may be carried out by any conventional technology including, but not limit to, inks, paints, silk screens, adhesives or glues. Later, laser technology is used to produce the marking on the can end's pull tab.

In this specification, the term "marking" encompasses any form of mark provided on the pull
20 tab, including a logo, alphanumeric, symbol, waving, topographic profile, and cut-outs through the tab. Among the earliest marking on either the pull ring tab or the end are "*Lift ring to open*", "*Dispose of properly*", "*Do not litter*" and other short messages. Since then, more creative markings in the form of colourful logo or decorative mark have been used for attractive, promotional and/or co-branding purposes, proof of purchase, genuine product
25 identification, anti-tampering, etc.

In prior art US6082030, a moulded plastic cover is used as identification system. This identification system is costly as the prior art needs additional plastic material to be slipped
into the pull tab.

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In prior art US6105806, a laser device is used to burn or etch the anodised or coated aluminium tab. A plurality of coatings of aluminium material must be used to produce a colour logo or decorative item on the can end's pull tab. The material, the process and the device to produce the logo or decorative item are costly.

In prior art WO0228730, a sticker-adhering device is engaged to stick the logo- or decorative item-bearing sticker onto the pull tab. The quality of the logo does not last long due to the nature of stickers.

- 5 The present invention seeks to overcome the limitations of the previous systems. One of the objects of this invention is to reduce the cost of putting a logo or words on the pull tab. The cost of stamping a pre-formed logo on a pull tab is much cheaper compare to a laser equipment.
- 10 Another object of this invention is the duration of time required to put a logo on the pull tab. For example, if a stamping process may be employed, the time required to stamp the logo on pull tab is very fast. The process will directly reduce the labour time or cost and this will increase throughput.
- 15 Still another object of the invention is to give a more lasting logo compare to some prior arts.

Summary of the Invention

- To achieve the aforesaid objects, it is provided in the general embodiment of the invention, a
- 20 method for providing markings on a metallic pull tab of a metallic can comprising press-working on said pull tab to provide a mark thereon.

- Preferably, the press-working includes any one of embossing, coining, punch-and-die, conversion pressing, stamping, punching, scoring and incising a mark on the pull tab and that
- 25 the mark includes any one combination of a logo, alpha-numeral, symbol, waving and topographic profile on the pull tab and may be provided in the form of apertures and cut-outs on said pull tab forming said mark.

- In a preferred embodiment, a plurality of the pull tabs may be formed on a metallic strip prior
- 30 to the press-working thereon to provide the marking on each said pull tab. A plurality of the marking may also be press-worked in suitably spaced apart distances on a metallic strip prior to forming pull tabs around each marking. Alternatively, the plurality of pull tabs and the corresponding marking thereunto on a metallic strip may be formed in a single press.

Preferably, the method may further comprises the step of folding in the edges of the pull tab to form an all-round lip.

In another aspect of the invention, a method is provided for fabricating an easy-open can end with a pull tab provided with marking comprising the steps of:

- forming said pull tab;
- press-working said marking on said pull tab;
- affixing said marked pull tab onto said can end, including riveting said tab onto said can end.

In a preferred embodiment, the step of affixing the marked pull tab includes removing the pull tab formed from a plurality of such pull tabs pre-formed on a metallic strip prior to affixing said marked pull tab onto said can closure by riveting means. Preferably, the method further comprises a step of folding in the edges of the pull tab to form an all-round lip.

In yet another preferred embodiment, the method further comprises the step of providing a score line outlining an aperture on the can end and affixing said pull tab at a point on the end which facilitate tearing of said score line at that point upon the lifting of the pull tab which enables a user to continue tearing along said score line to complete the opening of the aperture. An alternative to the aperture is one that is defined by the score line covering substantially the entire circumference of the end of the can.

In another alternative embodiment, the fabrication of a can end with a pull tab may be implemented in a single continuous process.

Brief Description of the Drawings

Figure 1 shows a top plan view of a can with the end provided with a logo stamped on the end tab according to one embodiment of the present invention.

Figure 2 shows a top plan view of a can with another embodiment of the end provided with a logo stamped on the end tab.

Figure 3 shows a block diagram of the method for producing the pull tab of the present invention.

Figure 4 shows a block diagram of an alternative method for producing the pull tab of the present invention.

Detailed Description of the Preferred Embodiments

The method of press-working, including stamping (i.e.: piercing, incising, punching: as defined in Mechanical Engineering Practice in Sheet-Metal works) a logo or words on pull tab according to the present invention may be best understood with reference to the drawings and the accompanying detailed description.

Figure 1 shows a can closure (1) of a can with the result of a logo stamped on a pull tab (10). The can closure (1) comprises of a pull tab (10) rigidly attached to the can closure (1), by a rivet (14) or any conventional means, and a tear strip (13) outlined by a score line (18) which can be pushed to tear open by force. The pull tab (10) includes a grip portion (12) and a fixed portion (11). The pull tab (10) is rigidly attached to can closure (1) by a rivet (14) and a slit (15) is provided adjacent the fixed portion (11) of the pull tab (10) to act as a lever with the rivet (14). The pull tab (10) pivots at rivet (14) when the grip portion (12) is lifted up and the resultant leverage with the fulcrum around the rivet applies downward force by the fixed portion (11) of the pull tab (10) to open the tear strip (13). The tear strip (13) is designed in such a way that a portion of the tear strip (13) will be torn opened and the remainder of the score line (18) intact with the can closure (1). Only when the tear strip (13) is pushed open completely to expose the opening or aperture, can the consumer consume the content of the can. The pull tab (10) is preferably made of metallic material that is easily processed, e.g. aluminium, aluminium alloys, steel or zinc or any other suitable material. The formation of the pull tab (10) can be done in a conversion press. The material allows the machine to easily stamp the desired logo on pull tab (10). Various of logos such as characters, icons, trademarks, etc can be stamped on the pull tab (10) for promotional purposes. A logo (16) is stamped on the pull tab (10) instead of forming a gripping aperture in the tab (10).

Figure 2 shows a second embodiment of the invention. In this embodiment, the pull tab (10) is similar to the first embodiment in construction and affixed to the can closure (21) by rivet

(24) with the tear strip (23) includes substantially the entire inner circumference of the can closure (21) of a can as defined by a score line (28) which can be torn to open the closure (21) of the can by pulling the pull tab (10).

- 5 The process of the invention may be implemented by a press-working apparatus in order for producing the pull tab (10) with, for example, a conversion press having stamping system to form the desired logos on the pull tab (10) as shown in a block diagram of Figure 3. In a first method of producing the pull tab (10) with stamped logo, a steel/aluminium strip is fed into the forming section (S31) to form the predetermined shape of tabs along the steel/aluminium
- 10 strip without the marking or logo on the grip portion (12) it. The formed tab strip is then fed into a stamping section (S32) to stamp and/or incise the desired logo on the grab portion of each predetermined shape of tabs on the formed tab strip. The formed logo tab strip after exiting the stamping section (S32) is then fed into the riveting section (S33) where pull tabs are removed from the formed logo tab strip (S34) and riveted onto the can closure of the can.
- 15 A person skilled in the art may add a folding section (S35) to fold in the sharp edges of the pull tab to provide an all-round lip to enhance the profile of the tab. The location of this folding section is interchangeable between the sections as previously mentioned.

- Figure 4 shows an alternative method for producing the pull tab (10) using a conversion press
- 20 having a stamping system to form logos on the pull tab (10). In this second method, the stamping section (S41) is located before the forming section process (S42). The desired logos are stamped and/or incised from the steel/aluminium strip in a predetermined distance between each stamped logo along said steel/aluminium strip (S41) prior to entering into the forming section (S42). The stamped logo will give a more lasting logo on the pull tab (10).
- 25 After forming the predetermined shape of tabs, the pull tab is then rigidly mounted to the can end by riveting.

- A painted steel/aluminium strip in desired colour may be used with the present invention if coloured pull tab with stamped logo are required. Similarly, the steel/aluminium strip with
- 30 coated colours may also be used with the present invention.

It is to be understood that the present invention may be embodied in other specific forms and is not limited to the sole embodiment described above. However modification and

equivalents of the disclosed concepts such as those which readily occur to one skilled in the art are intended to be included within the scope of the claims which are appended thereto.

Claims

1. A method for providing markings on a metallic pull tab of a metallic can end comprising press-working on said pull tab to provide a mark thereon.

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2. A method according to Claim 1 wherein the press-working includes any one of embossing, coining, punch-and-die, conversion pressing, stamping, punching, scoring and incising a mark on the pull tab.

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3. A method according to Claim 2 wherein the mark includes any one combination of a logo, alpha-numeral, symbol, waving and topographic profile on the pull tab.

4. A method according to Claim 1 wherein the mark includes apertures and cut-outs on said pull tab forming said mark.

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5. A method according to Claim 1 wherein a plurality of the pull tabs are formed on a metallic strip prior to the press-working thereon to provide the marking on each said pull tab.

6. A method according to Claim 1 wherein a plurality of the marking is press-worked in suitably spaced apart distances on a metallic strip prior to forming pull tabs around each marking.

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7. A method according to Claim 1 wherein the forming of a plurality of pull tabs and the corresponding marking thereunto on a metallic strip is provided in a single press.

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8. A method according to any one of the preceding claims further comprising the step of folding in the edges of the pull tab to form an all-round lip.

9. A method for fabricating an easy-open can end with a pull tab provided with marking comprising the steps of:

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- forming said pull tab;
- press-working said marking on said pull tab;
- affixing said marked pull tab onto said can end, including riveting said tab onto said can end.

10. A method for fabricating a can end with a pull tab according to Claim 9, wherein the step of affixing said marked pull tab includes removing said pull tab formed from a plurality of such pull tabs pre-formed on a metallic strip prior to affixing said marked pull tab onto said can closure by riveting means.

11. A method for fabricating a can end with a pull tab according to any one of Claims 9 to 10, further comprising a step of folding in the edges of the pull tab to form an all-round lip.

12. A method for fabricating a can end with a pull tab according to any one of Claims 9 – 12 further comprising the step of providing a score line outlining an aperture on said can end and affixing said pull tab at a point on said end which facilitate tearing of said score line at said point upon the lifting of the pull tab which enables a user to continue tearing along said score line to complete the opening of the aperture.

13. A method for fabricating a can end according to Claim 12 wherein the aperture as defined by the score line covers substantially the entire circumference of the end.

14. A method for fabricating a can end with a pull tab according to any one of Claims 9 – 12, which is implemented in a single continuous process.

15. A pull tab fabricated according to a method according to any one of Claims 1 – 8, including a plurality of such pull tabs formed on a continuous strip.

16. A can end fabricated with a pull tab according to any one of Claims 9 – 14.

17. A can including a pull tab according to Claim 15.

18. A can including a can end according to Claim 16.

19. An apparatus for implementing a method according to any one of Claims 1 to 14.