Dec. 25, 1934. H. HILDEBRANDT 1,985,290

TEARING STRIP CAN

Filed March 18, 1932

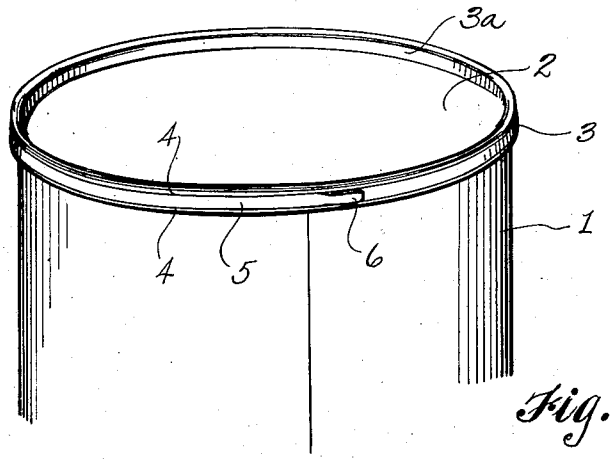


Fig. 1

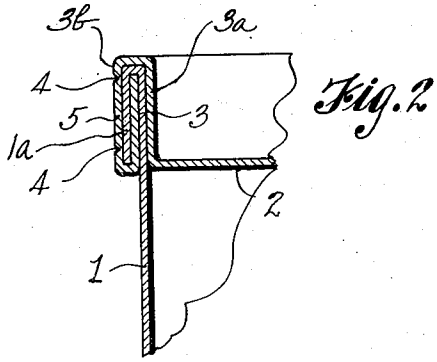


Fig. 2

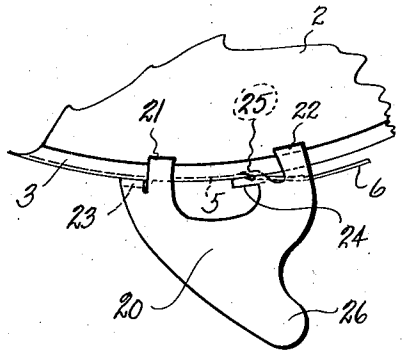


Fig. 5

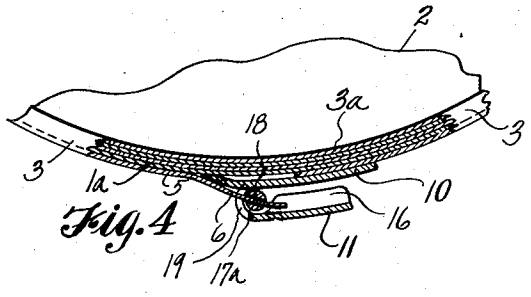


Fig. 4

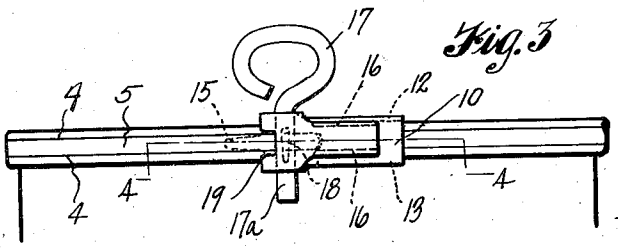


Fig. 3

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TEARING STRIP CAN

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9 Claims. (Cl. 220—53)

This invention relates to improvements in cans, and has reference more particularly to cans of that type in which tearing strips are set off by parallel lines of scoring, and are removable to detach the can end, or closure, from the body; it being the principal object of this invention to provide a tearing strip can that is less expensive, yet which retains all the advantages of the usual form of tearing strip can and has other advantages in addition thereto.

More specifically stated, it is the object of this invention to provide a can in which the end or closure is hermetically sealed to the body by means of a double seam, and wherein a tearing strip is located in the outer layer of the metal of the seam and is removable to detach the end or closure from the can body.

Another object of the invention is to provide a strip removing device of novel form, which is easily applied, easily used and which will remove the strip without danger of the strip being broken during the removing operation.

Still another object of the invention is to provide for removal of the tearing strip without leaving any ragged or sharp edges of metal exposed in such way that injury might result to a person in handling the can. Also to leave the cover in condition for use as a temporary reclosure.

Another object of the invention resides in the particular method of manufacturing this type of tearing strip can.

Other objects of the invention reside in the various details of construction and in the combination of parts and mode of operation, as will hereinafter be fully described.

In accomplishing these objects, I have provided the improved details of construction, the preferred forms of which are illustrated in the accompanying drawing, wherein—

Fig. 1 is a perspective view of one end of a tin can having a tearing strip located in the double seam in accordance with the present invention.

Fig. 2 is an enlarged, cross sectional view through the double seam showing the location of the score lines defining the tearing strip.

Fig. 3 is an elevation of the strip winding key as applied to the double seam of the can for removal of the strip.

Fig. 4 is an enlarged, horizontal section taken on line 4—4 in Fig. 3, showing the application of the key winding device to the double seam and to the tearing strip tongue.

Fig. 5 is a plan view showing use of a strip removing device of an alternative type.

Referring more in detail to the drawing—

1 designates a sheet metal or "tin" can of the usual type, having its top end or closure 2 joined to the body by the usual double seam 3. The closure, or end 2 has the usual countersink forming the vertical wall 3*a* fitting down within the mouth of the can body and it has a peripheral flange portion 3*b* interfolded and clinched to the can body flange 1*a* in the double seam. This seam, in its formation, is rolled down flat, and in the present instance has sufficient width that a substantial tearing strip may be incorporated therein.

The outer fold or layer of the metal of the double seam directly connects the closure 3 to the can body, and formed in this outer layer, in parallel relation and circumferentially about the can, are lines of scoring 4—4 defining the tearing strip 5.

It is preferred that this line scoring be done by suitable scoring rolls incorporated in the double seaming machine to operate after or during the seam forming operation. However, it is to be understood that the strip scoring operation might be done at any time after the seam was completed and by various kinds of machines.

After the strip 5 has been set off about the can by the scoring of the double seam, a gouge or other tool is used to break out a short length of the strip, to form a detached tongue as at 6 for attachment of a winding key. The provision of this tongue does not in any way affect the integrity of the seal of the double seam as its extent is too short and it is outside of the main sealing joint or joints provided in the seam.

With the strip so formed and the tongue thus provided, it is possible to remove the strip to detach the can cover from the body, by the usual winding key. However, as applied to the usual double seam, the tearing strip would be quite narrow and might be broken during its removal unless some precaution or special means was provided to aid the winding key. Therefore, I have provided a strip removing device as shown in Figs. 3 and 4 which co-acts with the winding key in such a manner as to pry the strip loose as the key winds in the strip. This device also causes the strip, as it is removed, to be wound evenly on the key.

This device in its preferred form consists of a yieldable metal plate folded or bent back on itself as a sort of U-shaped slide having the inner and outer wing portions 10 and 11. The part 10 is provided at its upper and lower longitudinal edges with inturned flanges 12 and 13 adapted,

respectively, when the part 10 is placed flatly against the double seam, to overlie and underlie the seam as a means of guiding the slide in its travel along the seam. At the base of the U-shaped slide is an extended prong 15, substantially the width of the tearing strip and of sufficient length that it may be extended beneath the free end 6 of the strip 5 and in the direction of the strip, to advance between the outer and next adjacent layers of the double seam, as seen in Fig. 4. The outer part 11 of the slide has inturned flanges 16—16 at its upper and lower edges to serve as guiding or retaining means for the coils of the tearing strip as it is wound onto the key.

As seen in Fig. 3, the shank 17*a* of the winding key 17 is extended within the base loop of the U-shaped slide and it has a slot 18 adapted to register with a slot or opening 19 in the base of the slide. When the slide is applied to the double seam, as in Figs. 3 and 4, the tongue 6 of the tearing strip may then be extended through the registering slots 19 and 18. Then by rotation of the winding key, the tearing strip will be wound onto the key and incident to this, the slide will be advanced in such way as to cause the prong 15 to pry the tearing strip outwardly from between the lines of scoring as an aid to its removal by the winding key. As the strip is wound on the key, the flanges 16 of the plate 11 keep the windings even and one upon the other, thus to avoid any lateral strain on the strip that would be apt to break it. As the windings pile up on the key, the key moves toward the open end of the slide and the opposite side wings 10 and 11 will be forced apart by the gradually increasing size of the core of the strip, thus to automatically take care of this condition.

In Fig. 5 I have shown an alternative means for removing the tearing strip. This consists of a plate 20 with downwardly flanged guide fingers 21 and 22 at its ends for overlying the double seam and with guides 23 and 24 for engaging the outside of the seam. A prong 25 extends from the plate to advance beneath and pry out the tearing strip as the plate is advanced on the seam about the can. A handle portion 26 is provided on the plate to aid in its use.

The main advantage in the provision of a tearing strip in the double seam, as above described, resides in the fact that on removal of the strip, the can body is not shortened or the cover displaced. Also, no extra metal or part is required for a contents retaining means to prevent spilling when the strip is removed. Furthermore, the body blank needs no added metal for use as a tearing strip tongue and thus cost of manufacture is reduced because of this saving in material.

Having thus described my invention, what I claim as new therein and desire to secure by Letters Patent is—

1. A can of the character described having a closure member at one end secured to the body in a double seam; said seam having lines of scoring in the outer fold thereof setting off a continuous tearing strip encircling the can.

2. A can of the character described having a closure member at one end secured to the body in a double seam; said seam having lines of scoring in the outer fold thereof setting off a continuous tearing strip encircling the can, a portion of the strip being broken loose to provide a tongue for application of a strip removing device.

3. A can of the character described having a countersunk closure fitted within the mouth of the body, and having a flange joined to the body flange in an interfolded seam; the outer layer of the folded seam directly joining the closure to the body flange, and having lines of scoring therein setting off a continuous tearing strip about the can with a portion of said strip broken loose and offset from the seam for attachment of a strip removing means.

4. The combination with a can having an encircling tearing strip formed with a tongue, of a strip removing means comprising a slide provided with a prong for advancing beneath the strip and a winding key associated with the slide to which the tongue may be attached whereby winding of the strip thereon advances the slide along the strip and causes the said prong to advance beneath and break the said strip free from the can.

5. A strip removing means for tearing strip cans comprising a slide mounting a strip winding key; said slide being adapted to advance with the key along the strip in the can wall as the tearing strip is wound from the can onto the key, and a prong extended from the slide for advancement beneath the strip to aid in its removal by the key.

6. The combination with a can having a tearing strip set off in its end seam, of a strip removing means comprising a slide adapted to follow about the can on said seam, and having a prong adapted to advance beneath the strip to break it loose from the seam, and a winding key mounted in the slide whereby the said slide will be advanced as the strip is wound onto the key.

7. A device as recited in claim 6 wherein the slide has guide flanges for engaging upper and lower edges of the can seam to guide the slide in its travel.

8. A device as recited in claim 6 wherein the slide embodies means whereby the windings of the strip on the key are retained evenly one upon the other.

9. The combination with a can having a closure member attached to the body by a double seam and having a tearing strip encircling the can in the outer layer of the seam, and formed with a free tongue, of a strip removing means comprising a slide of U-shaped form disposed for travel about the can upon the seam and having spaced flanges on one of the inner wing members for overlying opposite edges of the seam to guide the slide in its travel, a prong extending from the slide for advancement beneath the tearing strip, as the slide is advanced, a winding key revoluble within the base of the slide and having a slot for receiving the strip tongue; the outer wing member of the slide having means for guiding the winding of the strip on the key and being outwardly yieldable to accommodate an increase in size of the strip coil on the key; said slide being advanced along the seam incident to winding the strip on the key.

HAROLD HILDEBRANDT.