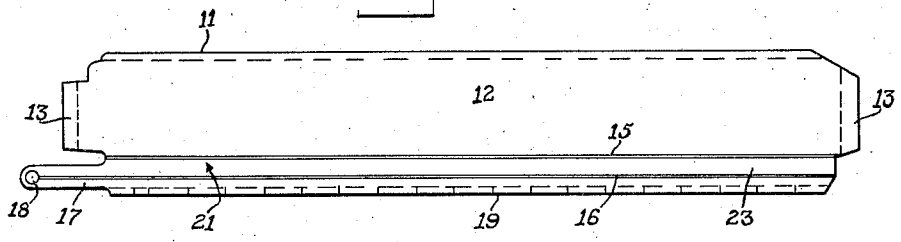
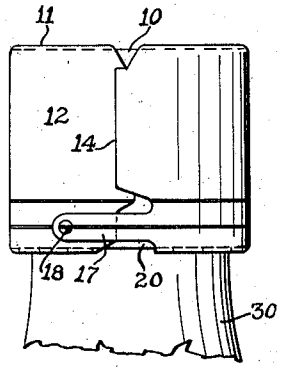
May 7, 1929. L. R. N. CARVALHO 1,712,103

BOTTLE CAP

Filed Nov. 3, 1927

Fig-1-





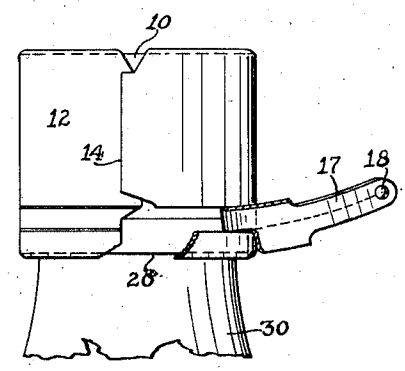
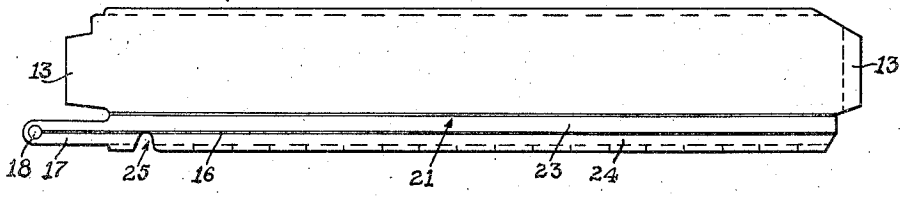


Fig-2-

Fig-3-



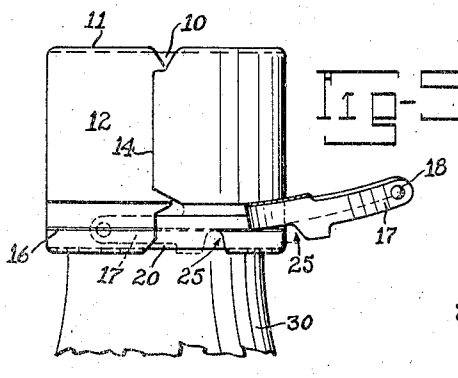


Fig-5-

Fig-4-

Inventor

Leslie R. N. Carvalho.

By J. F. Rule.

Attorney

Patented May 7, 1929. 1,712,103

UNITED STATES PATENT OFFICE.

LESLIE R. N. CARVALHO, OF TOLEDO, OHIO, ASSIGNOR TO THE CLOSURE SERVICE COMPANY, OF TOLEDO, OHIO, A CORPORATION OF OHIO.

BOTTLE CAP.

Application filed November 3, 1927. Serial No. 230,739.

The present invention relates to improvements in bottle caps and the like closures and has for its primary object the provision of means facilitating removal of caps formed with tear-off or rip strips in the attaching bands or skirts.

It is well known that in removing caps provided with these rip strips, the metal frequently breaks entirely across the strips so that it is extremely difficult, if not impossible, to remove the cap by continued use of the rip strip in the manner intended. Accordingly, it is the main purpose of the present invention to so construct a rip strip that it will not break entirely across its width and will provide an absolutely reliable means to remove caps and the like.

Other objects will be apparent hereinafter.

In the accompanying drawings:

Fig. 1 is a view of the exterior surface of the flat sheet metal strip from which the attaching band or skirt of the cap is formed.

Fig. 2 is a fragmentary side elevation showing the cap applied to a bottle or the like receptacle.

Fig. 3 is a view similar to Fig. 2, showing the tearing strip in a position and condition frequently assumed due to improper pulling on the strip while removing the cap.

Fig. 4 is a view similar to Fig. 1, showing a slight modification in the formation of the tearing or rip strip.

Fig. 5 is a view similar to Fig. 3, illustrating the removal of the modified form of tearing strip.

Referring to the drawings and particularly to the form shown in Figs. 1, 2 and 3, the cap comprises a top portion 30 or button 10 whose marginal portion is taken over by the inturned upper edge portion 11 of the attaching band or skirt 12, the ends 13 of which are interconnected in the usual or any preferred manner to form a vertical seam 14. The attaching band 12 is provided with a pair of longitudinal score lines 15 and 16, said score lines being spaced vertically relative to each other and to the lower edge of said band. The lower score line 16 (Fig. 1) extends longitudinally of a finger piece 17 formed at one end of the rip strip, said finger piece having a relatively small opening 18 which permits engagement by a fork or other implement to facilitate the removal of the cap. The lower edge portion of the attaching band is formed with an annular series of short slits 19 which facilitate inward bending of said edge portion over a shoulder 20 (Fig. 3) when attaching the cap to a receptacle 30, and also facilitate the removal of the strip by rendering it more flexible. By the above arrangement, there is provided a relatively wide rip strip 21, divided longitudinally by the score line 16.

The provision of the short slits 19 in the lower edge of the band for rendering the strip more flexible, is not claimed in the present application, as this feature of the invention is set forth and claimed in my copending application Serial Number 166,309, filed February 7, 1927.

In removing a cap constructed as above described, the finger piece 17 is grasped and pulled outwardly away from the cap and circumferentially thereof. It frequently happens that the person endeavoring to remove the rip strip will pull upwardly at a slight angle, with the result that a transverse break occurs in the rip strip. Except for the presence of the score line 16, the break would in all probability continue entirely across the rip strip 21 to the other or upper score line 15. Obviously, a break of the latter nature occurring shortly after the tearing operation starts would materially complicate conditions and prevent ready removal of the cap, particularly in so far as use of the rip strip is concerned. However, the presence of the intermediate score line 16, terminates the transverse break 22 at said line and permits continuation of the tearing along the two score lines 15 and 16. Completion of the tearing operation, separates the section 23 of the rip strip between said score lines from the rip strip and permits ready removal of the lower section of the rip strip and lifting of the cap and attaching band in the same manner as if the entire rip strip 21 had been removed without the occurrence of the break referred to.

In the form shown in Figs. 4 and 5, the attaching band 12 is formed with a rip strip 21 in two sections 23 and 24 as in the preceding form. In addition to these features, this rip strip 21 is formed with a notch 25 in its lower edge extending upwardly into the lower score line 16 at a point in proximity to the finger piece 17. Thus, it is observed that in removing the rip strip, only the upper section 23 is pulled circumferentially of the cap,

such section being torn from the remainder of the band along the two score lines 15 and 16. Due to the presence of the notch 25, such independent removal of the upper section 23 of the rip strip is assured and ready removal of the lower section 24 from the receptacle neck is possible.

From the above description, it is apparent that the present invention provides exceptionally effective and reliable means for removing caps from bottles or the like containers, and while the accompanying drawings illustrate the preferred embodiment of this means more or less in detail, it is to be understood that modifications may be resorted to within the spirit and scope of the appended claims.

What I claim is:

1. In a bottle cap, a top portion or button, and skirt therefor, said skirt having a circumferential score line spaced above its lower edge to form a rip strip of that portion of the skirt between said score line and said lower edge said rip strip also having a score line extending lengthwise thereof.

2. An attaching band for bottle caps and the like, comprising a body portion adapted to have its lower edge portion attached to a container, said body portion having a score line extending circumferentially thereof at a point in proximity to said lower edge to form a rip strip of that portion below the score line, and means included in the rip strip formation to prevent transverse tearing of the strip entirely across its width at any one point.

3. An attaching band for bottle caps and the like, comprising a body portion adapted to have its lower edge portion attached to a container, said body portion having a score line extending circumferentially thereof at a point in proximity to said lower edge to form a rip strip of that portion below the score line said rip strip formed with an intermediate score line extending parallel with the first named score line.

4. In combination, a receptacle having an annular shoulder, a cap including a top portion or button and an attaching band having its lower edge turned inward over said shoulder to attach the button to the receptacle, said band having a score line extending circumferentially thereof at a point in proximity to said shoulder to thereby form a rip strip of that portion of the band below the score line, said rip strip having a score line extending parallel with the first named score line.

5. In combination, a receptacle having an annular shoulder, a cap including a top portion or button and an attaching band having its lower edge turned inward over said shoulder to attach the button to the receptacle, said band having a score line extending circumferentially thereof at a point in proximity to said shoulder to thereby form a rip strip of that portion of the band below the score line, said rip strip having a score line extending parallel with the first named score line and dividing the rip strip into upper and lower sections, said lower section having a notch extending from its lower edge upwardly into the intermediate score line adjacent one end of said rip strip whereby the upper section may be torn circumferentially of the attaching band independently of the lower section.

6. In combination, a receptacle having an annular shoulder, a cap including a top portion or button, an attaching band having its lower edge turned inward over said shoulder to attach the button to the receptacle, said band having a score line extending circumferentially thereof at a point in proximity to said shoulder to thereby form a rip strip of that portion of the band below the score line, said rip strip having a score line extending parallel with the first named score line and dividing a rip strip into upper and lower sections, said lower section having a notch extending from its lower edge upwardly into the intermediate score line adjacent one end of said rip strip whereby the upper section may be torn circumferentially of the attaching band independently of the lower section, and a finger piece formed on the end of the strip adjacent said notch.

7. In combination, a receptacle having an annular shoulder, a cap including a top portion or button, an attaching band having its lower edge turned inward over said shoulder to attach the button to the receptacle, said band having a score line extending circumferentially thereof at a point in proximity to said shoulder to thereby form a rip strip of that portion of the band below the score line, said rip strip having a score line extending parallel with the first named score line, and a finger piece at one end of the rip strip, said finger piece including portions of both the upper and lower sections of said rib strip.

Signed at Toledo, in the county of Lucas and State of Ohio, this 27th day of October, 1927.

LESLIE R. N. CARVALHO.