

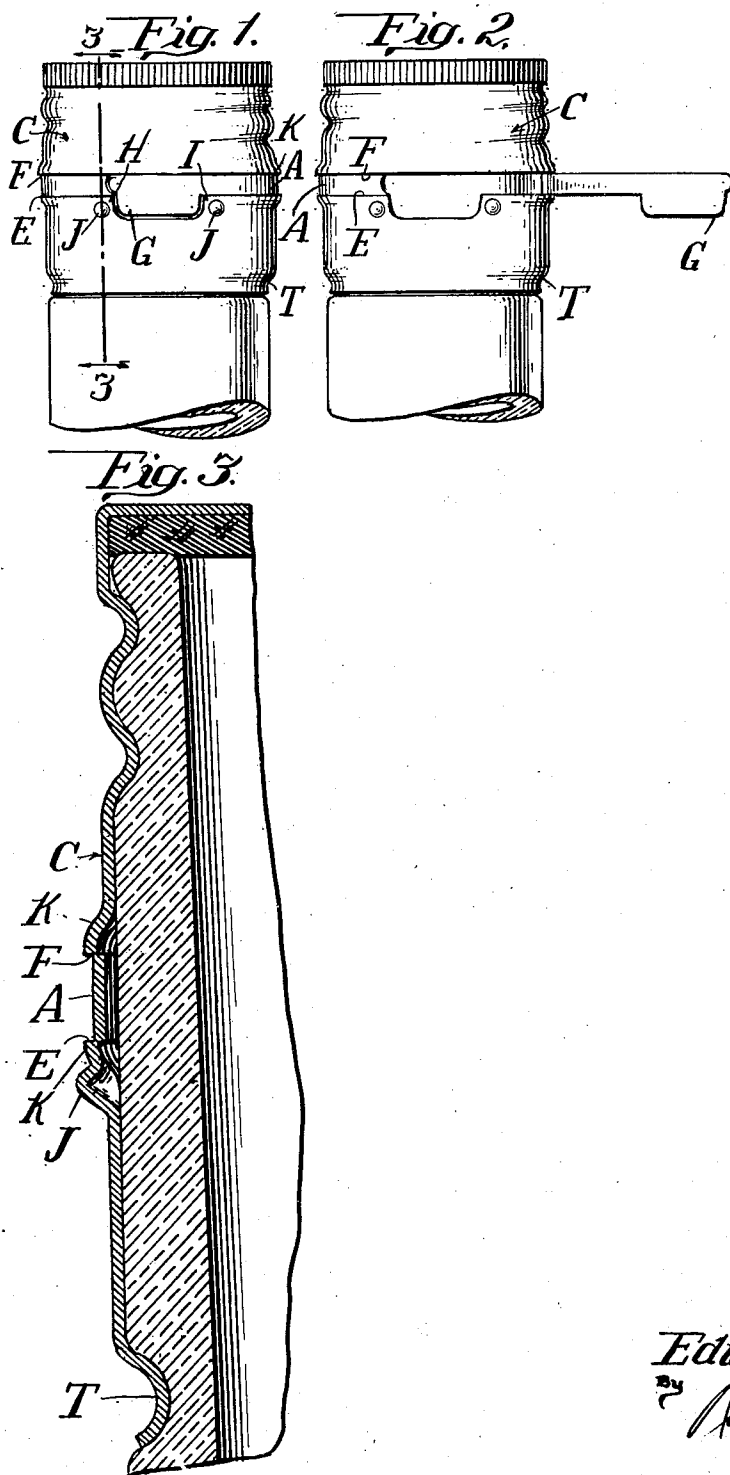
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SEVERABLE SHEET METAL ARTICLES SUCH AS BOTTLE SEALING CAPS

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SEVERABLE SHEET METAL ARTICLES SUCH
AS BOTTLE SEALING CAPSEdward H. Fabrice, Chicago, Ill., assignor to
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1 Claim. (Cl. 215—42)

This invention relates to improvements in sheet metal structures, such, for example, as bottle sealing caps which require destruction or severance in order to effect unsealing of the bottles to which they are applied or, with respect to other uses of such devices to enable removal of the severed article from the object upon which it is mounted to be effected easily and with certainty.

The sole object of the present invention is to provide a severable sealing means composed of sheet metal, and exemplified in a severable bottle sealing cap, wherein an annular strip of the metal integral with the body of the cap is so partly severed from said body as to be easily severable from the latter without causing any burrs to be on either the portions of the body of the cap remaining after removal of said strip, or along the side edges of the said strip, thereby to obviate cutting of fingers of the operator by contact with the exposed edges of the several disconnected parts of the structure.

In the accompanying drawing, there is illustrated an embodiment of the invention, wherein:

Fig. 1 is a side elevation of a cap constructed in accordance with the invention, showing the same mounted upon a bottle neck, the latter being shown in fragment.

Fig. 2 is a view similar to Fig. 1, showing the severable strip of the bottle cap partly torn away from the latter.

Fig. 3 is a fragmentary detail, longitudinal, sectional view on an enlarged scale taken on the line 3—3 of Fig. 1.

Receptacle sealing caps of the severable type have heretofore been made of a single piece of metal, such as sheet aluminum, foil, tin plate and the like, and, more commonly, such caps have been equipped with integral removable strips or ribbons of metal by bordering said strips or ribbons with a pair of annular scorings. The latter have been produced, as far as I am informed, by cutting into the body of the sheet metal by means of rotary cutters or perforating means to weaken the same along the lines of cut or perforation.

Structures of this kind are exemplified in Letters Patent to E. H. Fabrice, Nos. 1,771,034 and 1,798,151 and to Walter A. Statmann, Letters Patent Nos. 1,481,034 and 1,481,035.

Owing to variations in thickness and density occurring frequently in the metal of which the cap is composed and also to the fact that the scoring or cutting tools become chipped or dull and worn in a relatively short time, it has been found that in many instances the severable strip or ribbon

bordered by the weakening lines or scorings will tear out readily along some portions of the cap whereas at some points, due to conditions aforesaid, the strip or ribbon will suddenly tear laterally and leave a part thereof remaining integral with the body of the cap and difficult of removal.

This is particularly true in instances of a chip or chips being broken out of the cutting or scoring tool which usually is not discovered instantly and therefore causes large numbers of imperfectly scored caps to be produced. Such chipping leaves the metal uncut or unscored at one or more points and it is at such a point or points that the rip or tear-out strip is severed laterally with the result that resort to tools must be had to complete the severance of the cap.

The cutting or scoring tools penetrate the thin metal for only a few thousandths of an inch and require very frequent repair or renewal by very difficult hand labor because of the almost microscopic dimensions of the cutting or scoring means per se. This expense plus that resulting from failure of instant discovery of chipping or dulling of the said scoring means which is productive of very appreciable waste, contribute to increases in cost of production of severable bottle caps.

Hence, an object of the invention is to provide a structure falling within the scope of the present conception wherein the severing means are produced by tools far less apt to chip or dull and which are more cheaply, easily and quickly repaired or replaced than those heretofore used and which, accordingly, promotes lower cost of production of the articles and permits discovery of flaws in the tools, such as chipping or dulling thereof more readily than is possible in the case of the cutting and scoring tools heretofore employed.

In the present invention, the severable strip or ribbon (A), of the cap (C), is offset bodily from the adjacent metal of the cap so that, for example, in the case of the strip (A), the outer face of the same is offset appreciably inwardly of and out of alignment with the outer face of the cap immediately bordering the same. Said offset is relatively sharply defined and leaving visible and tangibly appreciable annular shoulders (E) and (F) bordering the said strip or ribbon (A). Similarly, the inner face of the strip (A) is equally relatively sharply offset to project from the inner face of the cap immediately bordering the same and for a distance substantially equal to the depth of the offset of the outer face of said strip or ribbon from the outer face of the cap.

In effecting the offsetting of the strip or ribbon (A), the metal of the substantially cylindrical portion of the cap (C), is pressed along lines flush with or substantially coincident with the side edges of the strip or ribbon (A) constituting the said shoulders (E) and (F) respectively, and through as great a portion of the thickness of the metal as may be requisite and necessary to produce the desired weakening thereof along the lines or bordering the area of offset of one part of the metal from the other.

Obviously, in effecting such offsetting of metal, that portion of the same which remains integral with both the body of the cap (C) and the strip or ribbon (A) is distorted or undergoes a change which contributes to a more ready severance of the strip or ribbon (A) from the body of the cap (C) than appears to result from the knife edge impressions or scorings heretofore practiced in the art to weaken the metal.

A further advantage of the present invention lies in the fact that the severable strip or ribbon bordered by the shear cuts is more clearly visible and well defined than is the case with the type of severable caps now in general use.

It has been found also that the tearing out of the strip or ribbon (A) leaves the edges of the remaining portions of the cap (C), bordering the shear cuts, free of burrs which tend to cut the fingers of persons removing and replacing the crown portion of the cap after severance of the latter.

In the instance illustrated in Figs. 1 to 3 inclusive, the strip or ribbon (A) terminates in the digitally engageable tongue (G) which is integral at one end with such strip or ribbon (A), but which, except at its points of junction with said strip or ribbon (A) is completely severed or struck out from the body of the cap (C). Said striking out of said tongue (G) is effected from the interior of the cap and consequently leaves outwardly projecting burrs along the lines of severance of said tongues (G) from said caps. Said burrs are particularly appreciable in the corners (H) and (I). In order to prevent contact of the fingers of the operator of the crown portions of the severed caps with the burrs at said corners (H) and (I), a pair of substantially semi-spherical formations (J) are projected outwardly from the adjacent portions of the cap to a height sufficient to attain that result.

In the instances of Figs. 1, 2, and 3, where the strip or ribbon (A) is offset inwardly from the body of the metal, it is preferable that the diam-

eter of the cap be increased and, as said caps are intended to and usually do fit the bottle necks very accurately, it is desirable to offset the metal adjoining said strip or ribbon (A) outwardly from the body of the balance of the cap, as indicated by the annular beads (K), the latter being somewhat exaggerated in the instance illustrated, so as to leave an annular space between the strip or ribbon (A) and the opposed portion of the bottle neck which is not necessarily left in the manufactured article.

It will be noted in the several figures of the drawing that the lower edge portion of the cap is secured upon the bottle neck by forcing said lower edge portion into an annular recess in the bottle neck as indicated at (T) in Figs. 1, 2, and 3.

It will be noted, as illustrated, that the offset edges bordering the lines of severance of the metal are disposed in planes substantially perpendicular to the face of the body of the structure.

The preferred embodiment of the invention is illustrated in Figs. 1, 2, and 3, wherein the strip (A) is offset inwardly from the outer face of the cap and the tongue (G) is projected outwardly for digital engagement, for the reason that in the progressive removal of the strip (A), all burrs, if any, will be disposed appreciably inwardly from the outer face of the structure and, therefore, will not contact with the fingers of the operator.

I claim as my invention:

A bottle sealing cap composed of a single piece of relatively hard and appreciably resilient sheet metal comprising cup-like formation including a substantially cylindrical skirt portion adapted to receive telescopically the terminal end portion of a bottle neck, said skirt portion equipped with an annular portion offset bodily inwardly from the outer face of said skirt portion and projecting inwardly of the inner face of said skirt portion a distance less than the thickness of the metal of which said skirt portion is composed, said annular portion being integral with said skirt portion and the inwardly projecting portion thereof presenting annular shoulders disposed in parallel planes extending perpendicularly to the axis of said skirt portion, said planes being common to said shoulders and to the upper and lower walls of the annular recess in the outer face of the cap of which said annular portion constitutes the bottom, there being a slot in said skirt portion intersecting and bordering the same in part and defining a digitally engageable end portion of said annular portion.

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