

July 26, 1960

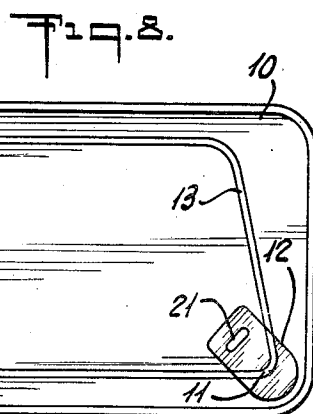
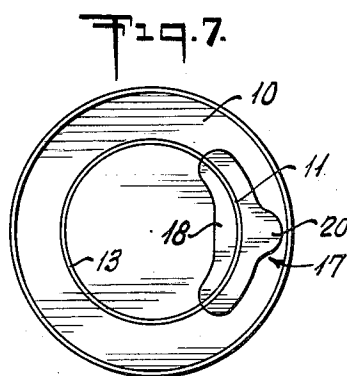
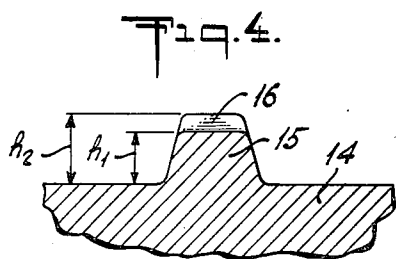
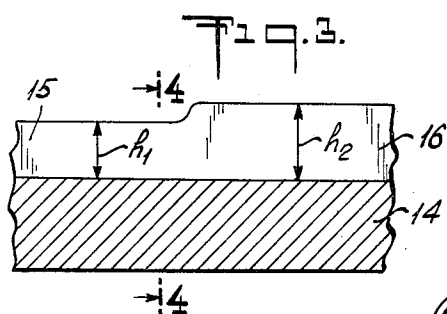
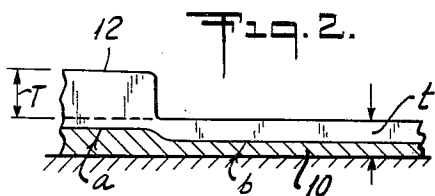
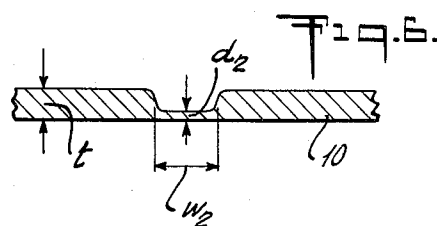
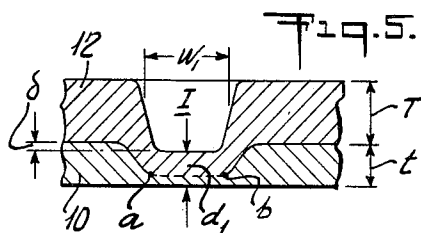
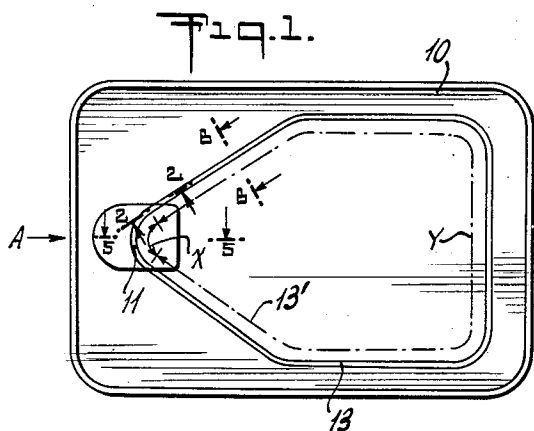
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2,946,478

OPENING MEANS FOR SEALED CONTAINERS

Filed Sept. 22, 1958

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

Fig. 9.

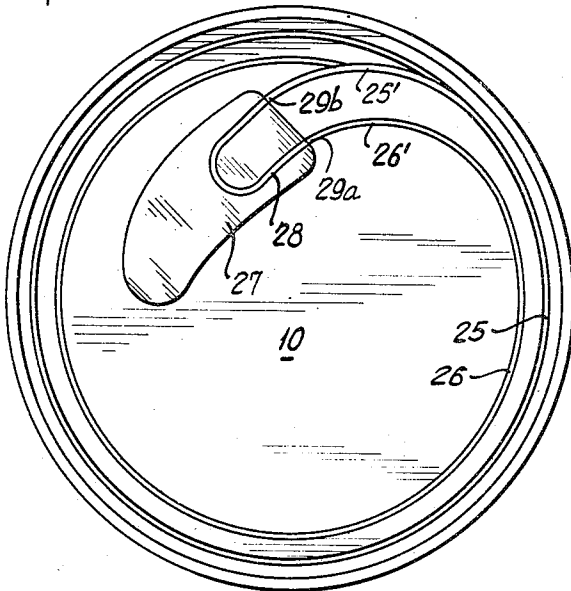


Fig. 10.

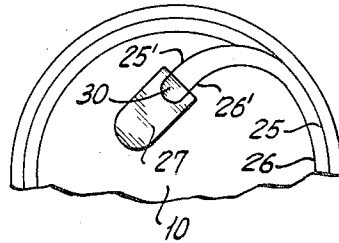


Fig. 11.

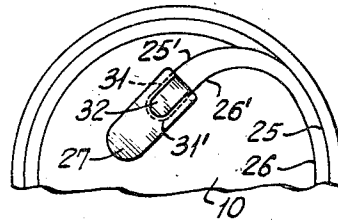


Fig. 12.

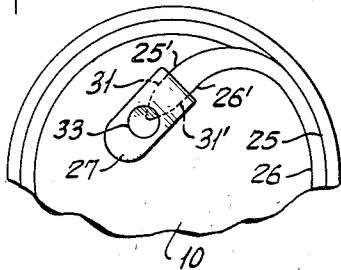


Fig. 13.

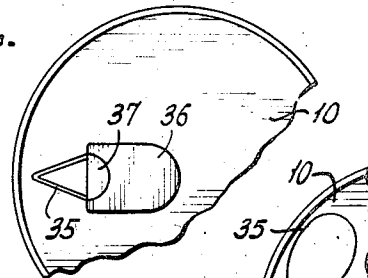


Fig. 14.

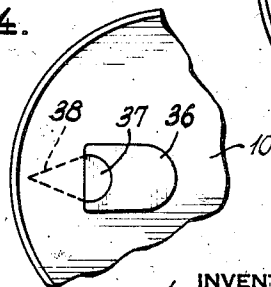
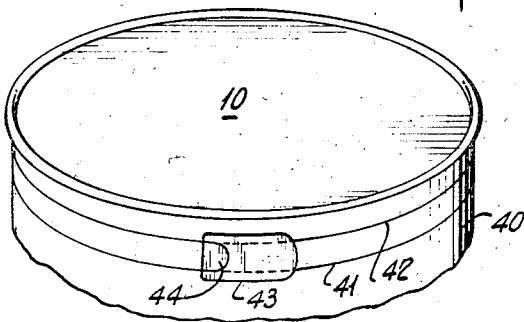


Fig. 15.



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## OPENING MEANS FOR SEALED CONTAINERS

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17 Claims. (Cl. 220—54)

The present invention relates to opening means for sealed containers, for removing the contents thereof, more particularly, though not limitatively, to metal cans or containers used for the storing and shipping of food stuffs and other substances. More specifically, the invention is concerned with cold pressure welded rip or tearing tag or the like detachable container opening means requiring no special opening tools or implements such as described by U.S. Patent No. 2,792,145.

The afore-mentioned patent describes and discloses a detachable container opening member or rip tag consisting of cold pressure weldable metal, such as aluminum, copper etc., said tag overlying the top or other wall portion of the container also consisting of cold pressure weldable material and being attached to the container wall by a closed linear or strip-like indentation pressure welded joint, such as a ring-shaped joint where a circular opening in the container is desired. Due to the reduced cross-section at the weld line or area and to the work hardening of the metal at the weld, an opening conforming to the configuration or contour of the weld line or pattern will be torn in the container wall by severing of the container metal upon tearing or pulling the tag or other detachable member off the container wall, without requiring any special opening tool, such as a can opener, opening key or the like.

The afore-described method of and means for opening sealed containers has been found especially useful in conjunction with containers used for the storing of liquid substances, such as drinks, juices, oils etc., by providing a most simple and efficient means for producing relatively small pouring or venting holes in the container wall suitable for the discharge of the liquid contents. Due to the relatively small size of the pouring openings, the dimension of the tag could also be held to a size small enough to reduce the costs of the tag and to enable an easy and smooth severing of the container metal or tearing of an opening by the average person, without special efforts or the use of a separate aid or opening tool.

On the the hand, where relatively large openings are to be produced, such as for the removal of solid or semi-liquid substances, such as for instance in the case of sardine cans or the like, great difficulties are experienced in that the tearing tag or the like detachable opening member may assume a rather large size, that is, equal to or greater than the opening to be produced in the container wall, whereby to increase the cost or amount of tag metal required and to render it difficult to insure a safe and smooth severing or tearing of the container metal with a minimum of force or effort.

Accordingly, an important object of the present invention is the provision of a cold pressure welded rip or tearing tag or the like detachable container opening member, whereby the size of the opening is substantially independent of the size of said tag or member.

Another object of the invention is the provision of a tearing tag or the like detachable container opening mem-

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ber suitable for producing relative large openings by means of a tag of relatively smaller size and shape, substantially without requiring increased force or effort for tearing said tag off the container wall.

Yet another object of the invention is the provision of an improved container opening means of this type suitable for producing an opening in a container wall of any desired size and configuration and which can be fabricated efficiently and expeditiously by means of relatively simple tools and manufacturing methods.

In the fabrication of a cold welded tearing tag as described in the above-mentioned U.S. patent, it has been customary to use a tag of greater thickness compared with the thickness of the container wall and to produce a weld at the desired tearing line or contour of the opening to be produced by a linear indentation made through the thinner member, that is, through the container wall into the thicker member constituted by the tag or equivalent detachable opening member. In effecting such a single-sided cold pressure weld, as distinguished from a double-sided weld, where indentations are made upon both members by means of a pair of opposed welding tools or indenters, it is necessary to pass through the thickness of the indented member into the other member or below the interface between the members, in order to create an adequate interfacial metal flow or coexpansion of the mating surfaces at the interface conducive to joining of the members by a true solid-phase welding bond. From this it follows that, in the case of relatively high ratios between the thickness of the thicker member and that of the thinner member, say for ratios greater than about 2:1 in the case of aluminum, it is advisable to weld through the thinner member into the thicker member, as shown and described by the above-mentioned patent.

While no great strength can be expected from a weld of this type, this defect is not objectionable in the case of rip tag or the like container opening means of the type described herein, where prime consideration is to afford an easy tearing of the metal along the contour of the opening to be produced, rather than to provide optimum efficiency or strength of the weld joint. However, another difficulty which has been encountered consists in the likelihood of cutting of the thinner (container) metal by the edges of the welding tools before final welding has been effected at the interface, whereby to result in a considerable number of rejects or faulty units, as well as in other drawbacks and defects well known. Furthermore, when using a ratio of tag thickness to container thickness of about 2:1 or less, as was found to be best suited for practical rip or tearing tag applications, it may occur that the cross-section of the metal at the edge defining the tearing opening or line, is weaker than the metal of the container, whereby to result in the tearing of a hole in the tag, rather than in the container as desired.

Accordingly, another object of the invention is the provision of a cold welded tearing tag or the like detachable container opening member which is substantially free from the aforementioned and related difficulties and which will insure a positive and secure tearing of the container metal, to result in a pouring or the like discharge opening of desired size and shape in the container wall.

The invention, as to its ancillary objects and novel aspects, will be better understood from the following detailed description of a few practical embodiments, taken in reference to the accompanying drawings forming part of this specification and in which:

Fig. 1 is a top view of a rectangular metal container provided with a detachable tearing tag or opening means

constructed in accordance with the principles of the invention:

Fig. 2 is an enlarged section taken on lines 2—2 of Fig. 1;

Fig. 3 is an enlarged fractional cross-section of an indenting tool suitable for simultaneous welding of the tearing tag and scoring of the container wall of Fig. 1, for carrying into effect the invention;

Fig. 4 is a sectional view of the scoring and welding tool, taken on line 4—4 of Fig. 3;

Fig. 5 is an enlarged section through the weld, taken on line 5—5 of Fig. 1;

Fig. 6 is an enlarged fractional cross-section through the scoring line taken on line 6—6 of Fig. 1;

Fig. 7 shows a modified type of container opening means of the type according to the invention;

Fig. 8 shows a modification of Fig. 1.

Fig. 9 is a top view of a cylindrical container provided with tearing tag opening means according to the invention for removing the top wall at a line close to the edge of the container;

Figs. 10 to 12 are fragmentary views similar to Fig. 9, showing alternative constructions of container opening means for removing the top wall of a cylindrical container in accordance with the invention;

Figs. 13 and 14 are further views illustrating tearing tags for producing relatively small holes, such as a pouring or venting hole, in the top or other wall portion of a container in accordance with the invention;

Fig. 15 is a partial perspective view of a cylindrical container embodying opening means in accordance with the invention for removing the top portion of the container; and

Fig. 16 shows still another modification for producing a pouring or the like opening in the top wall of a container according to the invention.

Like reference characters denote like parts in the different views of the drawing.

With the foregoing objects in view, the invention involves generally the provision of a combined welding and scoring line being bent or closed upon itself and defining the outline or contour of an opening to be produced in a container wall, the welded and scored sections of said line smoothly merging into one another and the welded portion forming the bent or part of the bent and extending over a relatively small fraction of the total length of said line or contour of the opening to be produced. As a result, a relatively small tearing tag or equivalent detachable member will be required for the production of relatively large openings, said tag being cold pressure welded to the container wall at a fractional portion only of the desired tearing line and merging into a scored portion of said line of weakened cross-section of the container wall, in such a manner that, upon lifting and pulling the tag or member off the container wall, the container metal will be at first severed along the line or contour of cold welding of said member, whereupon the tearing or severing of the metal will be continued along said scoring line, to result in an opening in the container wall of desired size and configuration, substantially independently of the size of said tag.

According to one aspect for carrying into effect the invention, a pair of scoring lines or a single line in a container wall being bent upon itself into a configuration, to define the shape of an opening to be produced in said wall, have their free ends joined by a curved relatively short linear indentation pressure welded joint of a tearing tag or the like detachable member connected to the container wall by cold pressure welding. Both the scoring and weld lines may form a closed curve defining an opening such that the material within the opening will be completely severed from the container upon tearing said tag off the container wall in a predetermined direction. Alternatively, there may be two separate scoring lines extending from the opposite ends of a cold welded joint,

such that there will be only a partial tearing of the material leaving a section connected to the container which may be reversely bent against the outside of the container for removing the contents thereof. Finally, two close and parallel scoring lines may have their opposite ends terminate in a cold pressure welded joint of a tearing tag or the like detachable member, whereby both lines conjointly define the shape or configuration of the opening to be produced in the wall of the container.

Moreover, in place of a linear or strip-like weld line merging into a single or into a pair of scoring lines, the cold pressure weld may be in the form of an indentation spot weld having a contour or tearing edge merging with the scoring line or lines in a manner more clearly described and understood from the following. Examples of practical tearing tags or container opening means having been found to produce satisfactory results will now be described in reference to the drawings.

Referring more particularly to Fig. 1 of the drawings, the numeral 10 indicates the top wall of a rectangular sealed metal container, such as a conventional sardine can or the like, at least the top wall of said container consisting of cold pressure weldable metal, such as aluminum. Overlying the top wall 10 of the container and being secured thereto by a linear curved or arc-shaped cold pressure welded joint 11 is a tearing tag or the like detachable opening member 12 also consisting of cold pressure weldable material, such as aluminum, and preferably having a thickness greater than the thickness of the container wall, for the purpose which will become more apparent from the following.

The cold pressure indentation weld extending over the fractional section  $x$  of the outline 13' of the opening to be produced in the container and providing a reduced metal section at the weld area merges into and is extended by the scoring line 13 throughout the remaining section  $y$  of the outline 13', whereby to define a continuous closed tearing line or opening contour of desired configuration and size, substantially independently of the size of the tag 12 or cold weld indentation 11. In the example shown, the weld and scoring lines 11 and 13 comprise a rectangular and triangular section having suitably rounded corners, to afford a smooth severing or tearing of the container metal along the contour or outline of the desired opening. In order to insure a safe or smooth transition from the weld line 11 to the scoring line 13, it is necessary that the tearing direction of the tag 12 forms an angle with said lines at the transition points, whereby to afford a secure and positive initiation of the tearing of the weakened or scored metal upon transition from the welded section 11 of the tag 12 to the scored section 13 of the top wall 10. This is obtained in Fig. 1 by a tag arranged to be pulled or torn in the direction A of the symmetry axis of the combined lines 11 and 13.

Fig. 2 shows a section taken along the weld and scoring portions, wherefrom it is seen that the tag 12 of thickness  $T$  has been indented to a depth shown at  $a$  or below the initial interface-with the container metal 10 of thickness  $t$ , while the container metal is reduced as shown at  $b$  to provide a suitably weakened scoring line, whereby to afford a smooth severing or tearing of the container metal first along the weld line 11 and then along the scoring line 13, upon pulling the tag 12 off the container wall in the direction of the arrow A.

The welding of the tag 12 and scoring of the container wall 10 are advantageously carried out by a single pressure application by means of a combined welding and scoring tool 14 having a plane surface and projecting therefrom a first welding indenter 15 of height  $h_1$  and a second scoring indenter 16 of the same or greater height  $h_2$  as shown in Figs. 3 and 4. In order to produce a combined weld and scoring indentation, the undersurface of the wall 10 may be supported by a flat anvil and the tag 12 placed in position, whereupon pressure is applied by the indenting tool, to result in a simultaneous cold pres-

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sure welding of the tag and scoring or weakening of the container metal along the weld and scoring line sections 11 and 13, respectively, of the outline or contour 13' of the opening to be produced in the container wall 10.

According to an improved feature of the invention, welding is effected by indentation from the thicker member (tag) into the thinner member (container). Besides avoiding an indentation or recess on the inside of the container which may be objectionable by trapping foods or for other reasons, such a weld has the advantage of insuring a positive and secure tearing of the container metal, whereby to practically eliminate any failures such as tearing of the tag metal as well as other defects when making a weld through the thinner into the thicker member according to previous cold pressure welding techniques, such as described in the above-mentioned patent. Since the tool penetration must extend below the original interface of the members, indentation welds from the thicker into the thinner member are practically limited to ratios between the thickness of the tag and the thickness of the container wall of about 2:1 and less for aluminum, assuming a total percentage reduction of the metal at the weld of about 60-70%. Such a ratio has been found to be best suited for practical rip or tearing tag applications of the type according to this invention, to provide both optimum efficiency as well as reliability in producing tearing or the like detachable container opening means according to the invention.

Fig. 5 shows an enlarged cross-section through a cold pressure weld of this type with the weld indentation I being made from the thicker or tag member 12, having a thickness T, into the thinner or container member of thickness t. The mean width  $w_1$  of the weld indentation may be about 1.5 to 2 times the thickness T of the thicker member, while the depth of the tool penetration or total percentage metal reduction at the weld should be about 60 to 70% for aluminum, in accordance with basic cold pressure welding techniques as described, for instance, in U.S. Patent Nos. 2,522,408 and 2,736,090. This results in a tool penetration below the original interface between the members and a resultant metal thickness at the weld  $d_1$  less than the thickness t of the thinner member 10. Such a weld has been found to insure a safe tearing or severing of the container metal and smooth transition from the weld line 11 to the scoring line 13.

Fig. 6 shows the weakening of the container wall or member 10 at the scoring line 13, the thickness  $d_2$  being best determined by experiment. A reduction of  $d_2$  equal to about one-third of the wall thickness t has been found to provide satisfactory results for aluminum as container metal. The width  $w_2$  of the scoring line 13 may be advantageously less than the width  $w_1$  of the weld line. However, a wider scoring line may be used, to suit any existing conditions and requirements.

Fig. 7 shows a modified arrangement for producing a circular opening in the top wall 10 of a cylindrical container, wherein said opening is defined by a relatively small arc-shaped cold welded portion 11, on the one hand, and a relatively larger scored portion 13 comprising the remainder of the circle. The tag 17 in this case may have an arc-shaped portion substantially conforming to the weld 11 and a radial portion 20 forming the tag proper as shown in the drawing and readily understood from the foregoing.

Fig. 8, being similar to Fig. 1, shows a modified weld and score line 11-13 in the form of a parallelogram with the tag 12 and cold weld 11 conforming to one of the rounded corners of said line or corresponding opening to be produced. In addition to the weld 11, the tag may be further secured to the container by one or more indentation spot pressure welds 21 by adding additional indenters to the tool described in reference to Figs. 3 and 4.

In the embodiments described hereinabove, the scoring and weld lines form a curve more or less closed upon itself and defining the outline or shape of the opening to be produced in the container wall. As a result, the container

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metal within said curve will be completely severed from the container, leaving a full opening, in a manner readily understood. Alternatively, the section of the scoring line y opposite to the weld line x may be omitted, whereby part of the metal within the curve will remain attached to the container and may be reversely bent against the container wall, for removing the contents of the container.

According to a modified construction of a container opening means according to the invention, a pair of parallel scoring lines arranged closely adjacent to one another may be provided conjointly defining the outline of the opening to be produced. One pair of ends of the scoring lines may either be left open or preferably connected by a curved portion while the opposite ends terminate in a cold pressure welded joint of a rip or tearing tag attached to the container wall. Such a construction has the advantage, among others, that the opening produced in the container wall may be close to the edge of the container, such as the top edge of a cylindrical container or metal can. Various embodiments of tearing tag opening means of this type constructed according to the invention are shown by Figs. 9-12.

Referring more particularly to Fig. 9, the top wall 10 or a cylindrical container is provided with a pair of substantially circular and parallel scoring lines 25 and 26 arranged as close as possible to the edge of the container, one pair of ends of said lines flaring away from one another as shown at 25' and 26' and being bent radially inwardly of the main portions 25 and 26, in such a manner as to terminate in a U-shaped linear cold pressure welded joint 28 of a tearing tag 27. The width of the cold weld joint 28 may exceed the width of the scoring lines 25 and 26 with the ends 25' and 26' of the latter gradually merging into the weld joint, as shown at 29a and 29b, respectively. The opposite ends of the scoring lines 25 and 26 may either run into the outer line 25 or curved portion 25', as shown, or they may stop short of the latter, as may be desired.

With an arrangement of the type described, lifting and pulling of the tag 27 off the wall 10 of the container will result in a tearing or severing of the container metal along the cold welded joint 28, whereupon severing will be continued along the scoring lines 25 and 26, in such a manner as to remove the metal or tear strip between said lines and to leave an opening in the top wall 10, in a manner readily understood.

In place of a U-shaped linear indentation weld as shown at 28, Fig. 9, the tearing tag or tab 27 may be attached with the wall 10 by a spot weld 30 as shown in Fig. 10, said spot weld having an edge or contour smoothly merging into the scoring lines or portions 25' and 26', respectively, as shown in Fig. 10. Alternatively, the scoring lines or portions 25' and 26' may be continued and closed underneath the tag 27 as shown at 31 in Fig. 11, a spot weld 32 again connecting the tag with the wall 10 within the U-shaped end 31 of the scoring line 31. In this case, upon lifting and pulling the tag 27 off the wall 10, the metal will be initially torn along the scoring line 31 due to the greater weakening of the container metal compared with the weld 32, thereby again causing a severing of the container metal along the main scoring lines 25 and 26, in a manner similar to and understood from the foregoing. According to a further modification, the scoring line 31 underneath the tag 27 may have a pointed end being in part overlapped by a weld spot 33, as shown in Fig. 12.

While the combined weld and score opening means according to the invention is especially suitable for the production of relatively large openings, while using a tag of small dimension, the invention may be employed with equal advantage for the production of small openings, such as pouring and/or venting holes. Thus, Fig. 13 shows a tearing tag 36 being cold welded to the top 10 along a semicircular indentation weld 37 terminating in a triangular scoring line 35, whereby to result in a pour-

ing opening in the container. The weld 37 may be either a linear weld extending over the semi-circle for relatively large openings, or a spot weld having an outer contour merging into the scoring line or lines for producing relatively small openings in the container wall.

In the Fig. 14 modification, the scoring line 25 is omitted and the weld line or contour 37 shaped to terminate in two parallel portions near the edge of the tag 36, whereby a triangular hole will be torn in the container metal upon tearing said tag off the container wall, as indicated by the dotted line 38. Furthermore, in place of producing an opening in the top wall 10, it is possible to remove the entire top portion of the container by the provision of a pair of scoring lines 41 and 42 upon the cylindrical container wall 40, said lines being connected to a tag 43 attached to the container by a spot cold pressure weld 44, as shown in Fig. 15. Again, upon lifting and tearing the tag 43 off the container wall, the material between the scoring lines 41 and 42 will be torn or removed, resulting in a separation of the container top, in a manner readily understood.

Fig. 16 shows another modification of the invention similar to Fig. 13 with scoring line 35 arranged closely adjoining the edge of the top wall 10 and with the tag 36 being sufficiently spaced from said edge to enable easy lifting and tearing of the tag. The scoring line 35 shown to be oval shape may define a pouring opening for the discharge of a liquid stored in the container and a similar tag and scoring line of the same or smaller size may be provided on the opposite side of the wall 10 (not shown), to serve as a venting hole or opening, in a manner readily understood.

While a tag of greater thickness than the container wall has been described and shown in the drawing, especially where the same container and tag metals are used, such as commercially pure aluminum, the tag may be of lesser or the same thickness but relatively harder material compared with the container, to insure a safe and positive tearing or severing of the container metal along the weld and scoring lines.

In the foregoing, the invention has been described in reference to a specific illustrative device. It will be evident, however, that variations and modifications, as well as the substitution of equivalent elements for those shown and described herein for illustration, may be made without departing from the broader scope and spirit of the invention as set forth in the appended claims. The specification and drawing are accordingly to be regarded in an illustrative rather than in a limiting sense.

We claim:

1. In combination with a sealed container having at least a wall portion consisting of cold pressure weldable metal, means for producing an opening in said container comprising a tearing tag or the like detachable member also of cold pressure weldable material, said member overlying and being secured to said wall portion by a linear indentation cold pressure welding joint providing a first indentation of said wall portion conforming to a fractional outline portion of an opening to be produced in said container, said wall portion being provided at its area exterior of said member with a second linear indentation forming a scoring line of reduced metal thickness conforming to the remaining outline portion of said opening, said first and second indentations gradually merging into one another, whereby to cause severing of the container metal at and to produce an opening conforming to the outline of both said indentations upon tearing said member off said wall portion in a predetermined direction.

2. In combination with a sealed container having at least a wall portion consisting of cold pressure weldable metal, means for producing an opening in said container comprising a tearing tag or the like detachable member also of cold pressure weldable material, said member

overlying said wall portion so as to intersect a curved relatively small fractional portion of the outline of an opening to be produced in said container and said member being secured to said wall portion by a linear indentation cold pressure welding joint conforming to said fractional outline portion of said opening and providing a first indentation of said wall portion, said wall portion being provided at its area exterior of said member with a further linear indentation forming a scoring line of reduced metal thickness conforming to the remaining portion of the outline of said opening, said first and second indentations gradually merging into one another, whereby to cause severing of the container metal at and to produce an opening in said wall portion conforming to the outline of both said indentations upon tearing said member off said wall portion in the direction of the symmetry axis of said first outline portion.

3. In container opening means as claimed in claim 2, said detachable member having a thickness greater than the thickness of said wall portion and the indentation of said member having a width equal to about 1.5 to 2 times the thickness thereof and a depth extending below the original interface of said member and wall portion.

4. In container opening means as claimed in claim 2, both said wall portion and member consisting of aluminum, said member having a thickness greater than but not exceeding about twice the thickness of said wall portion, said indentation of said member having a width equal to about 1.5 to 2 times the thickness thereof, and total percentage reduction of said member and wall portion at said weld indentation being about 75%.

5. In container opening means as claimed in claim 2, wherein said scoring indentation of said wall portion is at least 50% of the thickness thereof.

6. In combination with a sealed container having at least a top wall consisting of cold pressure weldable metal, means for producing an opening in said container having an outline comprising rectangular and triangular portions, said means comprising a tearing tag also of cold pressure weldable material superimposed upon said top wall in line with the symmetry axis of said opening and overlying the apex of said triangular portion, said tag being secured to said wall by a linear indentation cold pressure welding joint conforming to the underlying outline portion of said opening and providing a first linear indentation of said wall portion, said top wall being provided at its area exterior of said tag with a further linear indentation forming a scoring line of reduced metal thickness and conforming to the remaining outline portion of said opening, said first and second indentations gradually merging into one another, whereby to cause severing of the container metal and to produce an opening in said container conforming to the outline of both said indentations upon tearing said tag off said wall in the direction of said symmetry axis.

7. In container opening means as claimed in claim 6, said tag having a thickness greater than the thickness of said wall and the indentation of said tag having a width about 1.5 to 2 times the thickness of said tag and a depth extending below the interface between said tag and wall.

8. In container opening means as claimed in claim 6, both said wall and tag consisting of aluminum, said tag having a thickness greater than and not exceeding twice the thickness of said wall, the indentation of said tag having a width about 1.5 to 2 times the thickness thereof, and the total percentage reduction of said tag and wall at the weld being about 75%.

9. In combination with a sealed container having at least a wall portion consisting of cold pressure weldable metal, means for producing an opening in said container having a predetermined outline comprising a tearing tag also of pressure weldable material overlying said wall portion and intersecting a curved fractional portion of said opening outline, said tag being secured to said wall

portion by a linear indentation cold pressure welding joint conforming to said fractional outline portion and providing a first indentation of said wall portion, and further a linear indentation of said wall portion of reduced thickness conforming to the remaining portion of said opening outline, to provide a scoring line, said weld joint and scoring line forming indentations gradually merging into one another and a continuous trace conforming to said opening outline, whereby to cause severing of the container metal and to produce an opening in the container wall upon tearing said tag off said wall portion in the direction of the symmetry axis of said first fractional outline portion of said opening.

10. In combination with a sealed container having at least a wall portion consisting of cold pressure weldable material, means for producing an opening in said container having a predetermined outline comprising a tearing tag also of cold pressure weldable metal overlying said wall portion and intersecting a fractional portion of said outline, said tag being attached to said wall portion by an indentation cold pressure welded joint having an outline conforming to said fractional outline of said opening and providing a first linear indentation of said wall portion, whereby to cause a severing of the container metal thereat upon lifting and tearing said tag off the container wall, said wall portion being provided with a second linear indentation exterior of said tag and conforming to the remaining outline portion of said opening, to provide a scoring line, said first and second indentation smoothly merging into one another, whereby to effect severing of the container metal along both said weld and scoring line indentations by continued tearing of said tag off the container wall.

11. In container opening means as claimed in claim 10, wherein said joint has the form of a linear indentation weld conforming to said fractional portion of said opening and having its ends gradually merging into said scoring line.

12. In a container opening means as claimed in claim 10, wherein said joint has the form of a spot indentation weld having a contour conforming to said first fractional portion, the outline of said spot merging into said scoring line.

13. In combination with a sealed container having at least a wall portion consisting of cold pressure weldable material, means for producing an opening in said container comprising a tearing tag also of cold pressure weldable metal overlying and being attached to said wall portion by an indentation cold pressure weld spot extending through said tag and into the container wall, and a pair of parallel scoring lines of weakened cross-section of said wall portion exterior of said tag, said scoring lines having one pair of ends terminating in and gradually merging into the outline of said weld spot, whereby pulling of said tag off the container wall causes a severing of the container metal first along the contour of said weld spot and subsequently along said scoring line.

14. In combination with a sealed container having at least a wall portion consisting of cold pressure weldable material, means for producing an opening in said container comprising a tearing tag also of cold pressure weldable material overlying and being secured to said wall portion by a U-shaped linear indentation cold pressure welded joint extending through said tag and into the container metal and providing a first linear indentation of said wall portion, and a pair of parallel scoring lines of weakened cross-section of said wall portion ex-

terior of said tag and providing a second linear indentation on the same side of said wall portion, said scoring line indentations having one pair of ends terminating in and gradually merging into the ends of said U-shaped weld line indentation, whereby pulling of said tag off the container wall causes a severing of the container metal first along said weld joint and subsequently along said scoring lines.

15. Opening means for sealed containers having at least a wall portion of cold pressure weldable metal, said wall portion being provided with a tear strip bounded by a pair of scoring lines providing first areas of reduced metal thickness of said wall portion defining an opening to be produced in said container, and a tearing tag also consisting of cold pressure weldable metal, said tag having an end coinciding with one end of said strip and being connected to said wall portion by an indentation cold pressure welding joint exterior of and closely adjoining the end of said strip, said joint providing a second area of reduced metal thickness of said wall portion having an outline gradually merging into said scoring lines, whereby tearing said tag off said wall portion causes a severing of the container metal along a trace beginning with said weld outline and smoothly passing into said scoring lines.

16. Opening means for sealed containers having at least a wall portion of cold pressure weldable metal, said wall portion being provided with a tear strip bounded by a pair of scoring lines providing first areas of reduced metal thickness of said wall portion defining an opening to be produced in said container, and a tearing tag also consisting of cold pressure weldable metal, said tag having an end coinciding with one end of said strip and being connected to said wall portion by a U-shaped linear indentation cold pressure welding joint exterior and joining the end of said strip, said joint providing a second area of reduced metal thickness of said wall portion and arranged with the legs of the U-indentation gradually merging into said scoring lines, whereby tearing of said tag off said wall portion causes a severing of the container metal along a trace beginning with said weld indentation and smoothly passing into said scoring lines.

17. Opening means for sealed containers having at least a wall portion of cold pressure weldable metal, said wall portion being provided with a tear strip bounded by a pair of scoring lines providing first areas of reduced metal thickness of said wall portion, and a tearing tag also consisting of cold pressure weldable metal and having a greater thickness than said wall portion, said tag having an end coinciding with one end of said strip and being connected to said wall portion by a U-shaped linear cold pressure weld indentation extending through said tag and into said wall portion, to provide a second area of reduced metal thickness of said wall portion, said weld indentation arranged with the legs of the U gradually merging into said scoring lines, whereby tearing said tag off said wall portion causes a severing of the container metal along a trace beginning with said weld indentation and smoothly passing into said scoring lines.

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