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2,275,426

CONTAINER

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Fig. 1

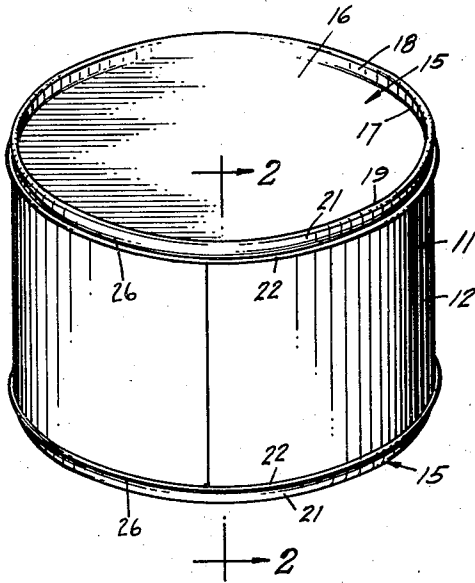


Fig. 2

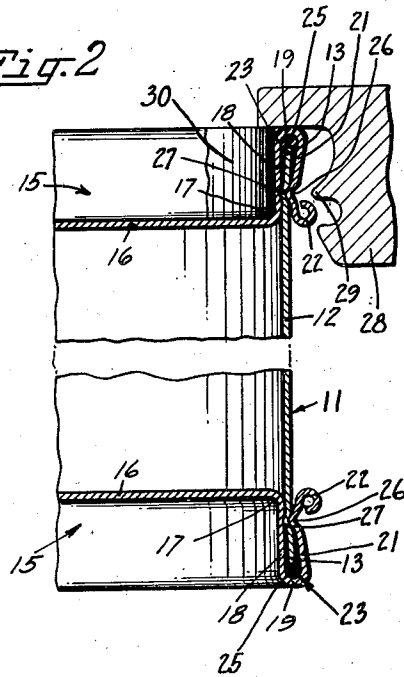
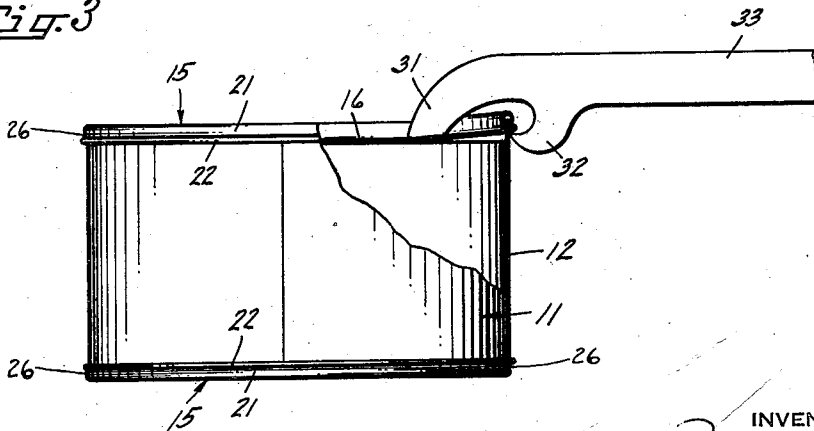


Fig. 3



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CONTAINER

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The present invention relates to sheet metal containers and has particular reference to a hermetic crimped end seam for a raw unflanged edge body to provide a container or can which is hermetically tight but which may be readily opened by a prying off of the can end.

An object of the invention is the provision of a can of simple construction which may be manufactured economically and which has a hermetically sealed closure adapted to be easily and quickly removed by a mere prying action when it is desired to open the can, the construction of the can and its closure being such as to give a full open mouth to the can when the closure is removed.

Another object is the provision of such a can wherein its ends are provided with a seam lining compound and are crimped over raw unhemmed terminal edges of the body in an improved metal pinching action which produces a slightly flared end seam or joint which is hermetic and which will withstand processing strains and which at the same time will permit easy removal of the entire can end by a simple prying action.

Numerous other objects and advantages of the invention will be apparent as it is better understood from the following description, which, taken in connection with the accompanying drawing, discloses a preferred embodiment thereof.

Referring to the drawing:

Figure 1 is a perspective view of a sealed sheet metal can embodying the instant invention;

Fig. 2 is an enlarged sectional detail of one side of the can, the view being taken substantially along the lines 2—2 in Fig. 1, with part broken away, the view also showing fragments of a crimping roller and a chuck utilized in forming the seam; and

Fig. 3 is a side elevation of the can showing how it is opened with a conventional prying tool, portions of the can being broken away and shown in section and part of the prying tool being broken off.

As a preferred embodiment of the invention the drawing illustrates a can which includes a tubular body 11 having a side wall section 12 the upper and lower terminal or marginal edges 13 of which are straight without hem, curl or bend. The open ends of the body are closed with top and bottom can ends or closures 15. As in common can making practice the bottom end is preferably secured in place first and then the can is filled with its contents in the usual manner. After filling the top end is secured in place which

hermetically seals the can. Where the contents is a food product the sealed can may be processed in the usual manner, the joints being adapted to stand such treatment.

In the drawing the top and bottom closures are shown as being of identical construction although it should be understood that portions of the closures may be different in detail. The invention is also equally well adapted to a drawn body where only one closure is used to seal the can.

A can end 15 is preferably formed with a countersunk bottom wall section 16 which merges at an annular curved corner 17 into a surrounding substantially vertical inner flange 18. The inner flange 18 of the can end merges into an outwardly curved wall section 19 which in turn merges into an outer flange 21, the latter terminating in an outwardly bent curled edge 22 disposed in substantially the same horizontal plane (as viewed in Fig. 2) as the bottom wall 16 of the can end. The flanges 18, 21 and their connecting curved wall section 19 thus set off an annular U-shaped channel 23. A deposit of a suitable lining compound 25 is disposed in this channel.

When a can end 15 is assembled in place on the body ready for sealing, the countersunk panel is disposed inside the can body, the inner flange 18 extending adjacent the inner surface of the body wall 12 with its curved corner section 17 in engagement therewith as best shown in Fig. 2. The curved section 19 of the can end extends over the raw unhemmed edge 13 of the body and this raw edge is embedded in the compound. The outer flange 21 of the can end extends down adjacent the outer surface of the can body wall 12.

While in this position the outer flange 21 of the closure is pressed inwardly against the body side wall 12 and the inner flange 18. This pressing or crimping action is effected at a point adjacent the outer curled edge 22 of the closure and along a single narrow annular line of engagement so that only the smallest possible area of these can parts are actually pinched together. Sufficient pressure is exerted along this narrow line of engagement to groove the outer flange 21 and thereby form an inwardly bent bead 26 in the outer flange and a similar bead 27 in the body side wall 12, this latter bead being embedded into the inner flange 18. This beading action stretches the metal of the seam parts along only the single narrow line of engagement thus leaving the remainder of the flanges including the curled edge 22 unstretched but greatly stiffened or reinforced.

During this pinching of the closure and the body flange parts the enclosed portion of the body side wall 12 adjacent the raw edge 13 is bent outwardly or reformed into a slightly outwardly flared shape. This flared section of the body side wall together with the inwardly formed beads 26, 27 hold the can end tightly in place so that processing of the can contents may be effected without injury to the end seam and without displacement of the end from the body. The compound lining, being wholly confined within the crimped seam, is pressed tightly around the raw edge of the body side wall and thus results in hermetically sealing the joint.

The crimping or pinching of the seam flange parts together are preferably effected by a roller 28 having an annular pinching ridge 29 adapted to press the metal of the can seam parts inwardly while they are backed up or supported by a chuck 30. It is this pinching ridge 29 which forms the beads 26, 27 which lock the closure seam portion and the body side wall together along only a single annular line of engagement.

To open the sealed can it is only necessary to pry off the can end by the use of a conventional can or bottle opener. One such can opener is illustrated in Fig. 3 and includes a fulcrum lug 31 and a curved hook 32 which are formed at one end of a prying handle 33. The tool is placed on the can so that the fulcrum lug rests on top of the closure wall section 16 and the hook 32 is engaged under the curled edge 22 of the outer flange 21 of the can end. With the tool in this position, an upward lifting of the handle 33 readily pries the can end off the body and thus leaves a full opening of the can and an unrestricted mouth for easy removal of the can contents.

It is thought that the invention and many of its attendant advantages will be understood from the foregoing description, and it will be apparent that various changes may be made in the form, construction and arrangement of the parts without departing from the spirit and scope of the invention or sacrificing all of its material advantages, the form hereinbefore described being merely a preferred embodiment thereof.

I claim:

1. A sheet metal hermetically sealed container of the pry-off type designed to resist internal pressure resulting from processing contained food products after sealing, said container comprising a tubular body having a straight raw marginal edge at an end thereof, and an end closure

for sealing said body, said end closure having a countersunk wall surrounded by spaced inner and outer flanges defining a channel enclosing the raw edge of said body, the outer of said flanges terminating in a peripheral curled edge, said flanges being crimped tightly against the body along an annular line of contact, said body marginal edge and said outer flange being locked together in an inwardly offset annular bead which holds the closure in place against axial displacement during processing of the can contents, said annular bead being disposed outwardly of said countersunk wall and opposite the inner flange, the inner surface of the inner flange of said closure being substantially smooth throughout, the channel space outwardly of said bead confining a sealing compound in which the raw edge of the body is embedded to provide a hermetic seal between the closure and the body, said curled edge of the closure facilitating opening of the can by a prying action.

2. A sheet metal hermetically sealed container of the pry-off type designed to resist internal pressure resulting from processing contained food products after sealing, said container comprising a tubular body having a straight raw marginal edge at an end thereof, and an end closure for sealing said body, said end closure having a countersunk wall surrounded by spaced inner and outer flanges defining a channel enclosing the raw edge of said body, said flanges being crimped tightly against the body along an annular line of contact, said body marginal edge and the outer of said flanges being locked together in an inwardly offset annular bead which holds the closure in place against axial displacement during processing of the can contents, said annular bead being disposed outwardly of said countersunk wall and opposite the inner flange, the inner surface of the inner flange of said closure being substantially smooth throughout, the inner and outer flanges of said end closure and the enclosed raw edge of said body outwardly of said bead being flared outwardly to resist axial displacement of the closure, the channel space outwardly of said bead confining a sealing compound in which the raw edge of the body is embedded to provide a hermetic seal between the closure and the body, said outer flange terminating in an outwardly curled edge to facilitate prying removal of said end closure from its locked and sealed position on said container.

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