May 8, 1956 J. VNUK 2,744,655

LINED CONTAINER AND CLOSURE THEREFOR

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Fig. 1

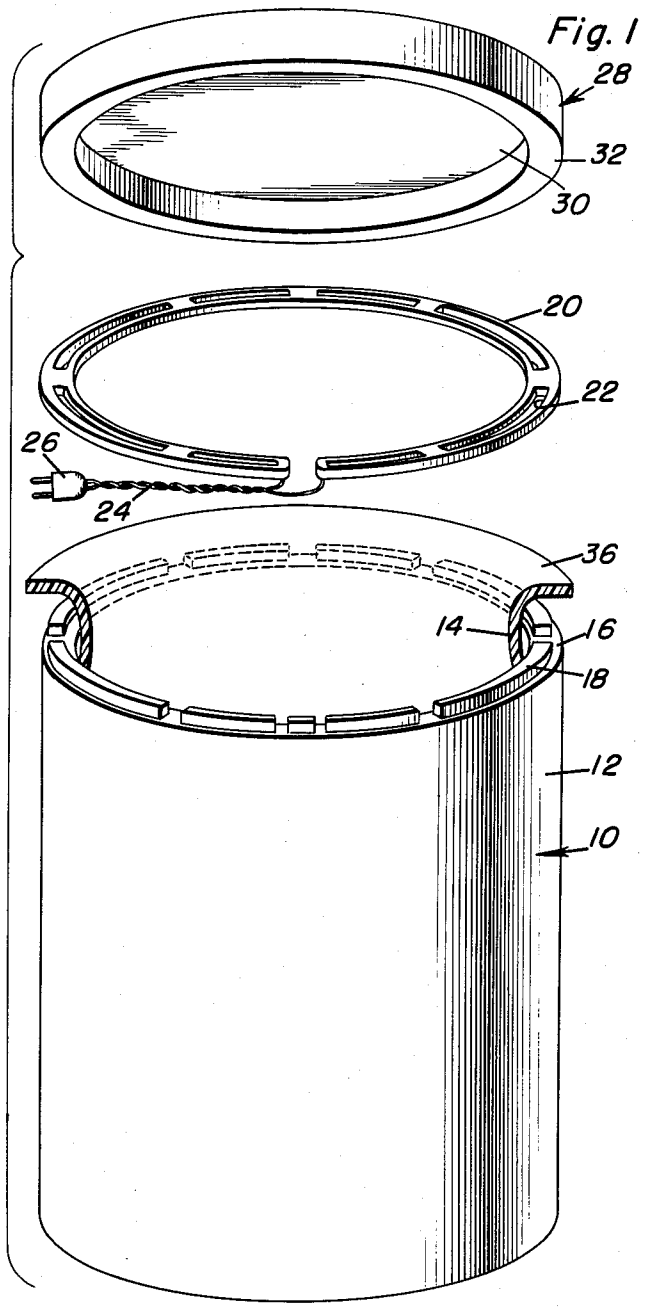
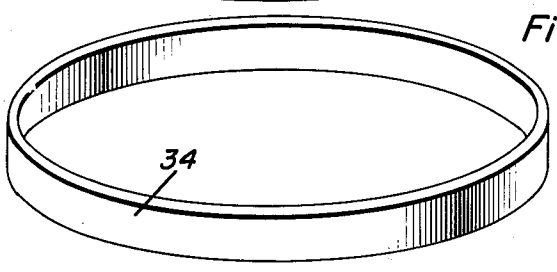


Fig. 2



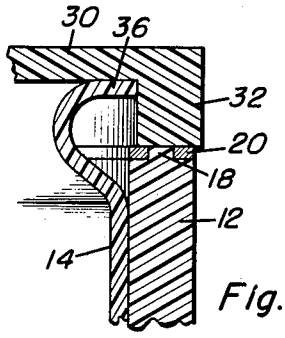


Fig. 3

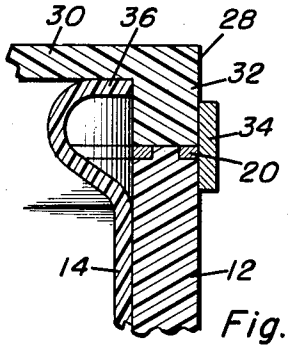


Fig. 4

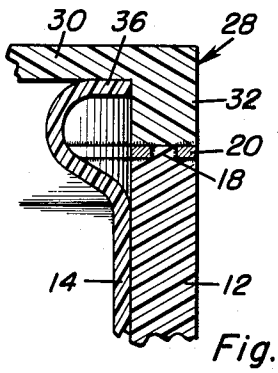


Fig. 5

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LINED CONTAINER AND CLOSURE THEREFOR

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1 Claim. (Cl. 220—63)

This invention relates to a container and a closure therefor and more specifically provides a means for efficiently and effectively sealing a container and opening the container after it has been sealed.

An object of this invention is to provide a container having a closure which is fused thereon by use of a heat ring.

Another object of this invention is to provide a container with a closure resting thereon and a heat ring which remains with the container and closure for reheating the juncture between the closure and the container thereby permitting the closure to be disjoined from the container.

A further object of this invention is to provide a container and closure embodying a heat ring which remains with the container wherein the heat ring may be connected to a source of electrical energy for permitting the container to be opened.

Yet another object of this invention is to provide a container having a double wall at its upper end portion wherein the inner wall extends from the outer wall and engages the closure member for urging the closure member into disalignment with the container when the closure is separated from the container.

A still further object of this invention is to provide a container having a double wall construction with the inner wall extending outwardly over a portion of the outer wall thereby forming a pouring spout for the contents in the container.

An important object of this invention is to provide a container enclosure which is simple in construction, easy to assemble and disassemble, involving a new method of sealing containers and inexpensive to manufacture.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a group perspective showing the container, the heat ring and the closure member;

Figure 2 is a perspective view showing the retaining or assembly ring;

Figure 3 shows the container, heat ring and closure in position ready for assembly;

Figure 4 shows the structure of Figure 3 with the assembly or retaining ring in position bridging the juncture between the closure and the container; and

Figure 5 is a view similar to Figure 4 showing the closure, heating ring and container fused together and the retaining ring removed.

Referring now specifically to Figure 1, it will be seen that the numeral **10** generally designates a container having an outer wall **12**, an inner wall **14**, an upper end **16** and vertical projections **18** of the upper edge **16**. It will be noted that the projections **18** are elongated and spaced from each other and the width of the projections are less than the width of the outer wall **12**. A heating

ring **20** having openings **22** therein for receiving the projections **18** is provided with a suitable electrical conductor **24** connected to a conventional electric plug **26** for supplying electrical energy to the heating ring **20**. A closure member **28** has an upper member **30** forming a closure and a depending vertical wall **32** which is adapted to be positioned on the container **10** thereby closing the container.

Referring now specifically to Figure 2, it will be noted that a retaining ring **34** is provided for assembling the container **10**, heating ring **20** and the closure **28** in a manner described hereinafter. The assembly or retaining ring **34** is a cylindrical member having an inner diameter substantially equal to the outer diameter of the container and closure.

Referring now specifically to Figures 3–5 it will be seen that the inner wall **14** is secured to the outer wall **12** and projects inwardly and then curves back outwardly from the outer wall with the upper end **36** on the inner wall **14** abutting the inner surface of the vertical portion **32** of the closure **28**. In its normal position, as shown in Figure 3, the end portion **36** normally urges the vertical wall **32** into misalignment with the outer wall **12**. The heat ring **20** is positioned on the upper end **16** of the outer wall **12** with the projections **18** extending through the apertures **22** in the heat ring **20**. It will be noted that the heat ring is substantially coextensive with the outer wall **12** and the projections have a vertical height which is substantially equal to the thickness of the heat ring **20** thereby providing substantially a smooth upper surface across the heat ring for receiving the vertical wall **32** of the closure member **28**. After the elements have been assembled as shown in Figure 3, the retaining ring **34** is slipped down over the closure member **28** until it bridges the juncture between the outer wall **12** and the vertical wall **32**. The electrical plug **26** is connected to a suitable source of electrical energy and the electrical resistance heating element in the heating ring **20** heats the adjoining surfaces of the projections **18** and the vertical wall **32** thereby fusing the adjoining surfaces of the outer wall **12** and the vertical wall **32** to each other and to the heating ring substantially as shown in Figure 5. The container **10** and the closure **28** may be molded from polythene or any suitable plastics and the heating ring **20** may be constructed of chromel or other electro-heating alloy and the retaining ring may be of any suitable metal such as stainless steel or chrome.

As best seen in Figure 1 the upper portion of the inside wall **14** will form a pouring spout when the contents of the can are to be emptied thereby preventing the contents to drip from the edge of the can. Obviously, the heating ring may be connected to a source of electrical energy in any conventional manner and the outer wall **12** may be relieved in order to receive the wire **24** when the retaining ring **34** is in position. After the closure has been fused onto the container outer wall the can and the commodity in the can is ready for sale or distribution wherever it is desirous to employ a rust-proof container. The housewife, after obtaining the sealed container, may insert the plug into a suitable household outlet and reheat the heating ring and the adjoining surfaces of the outer wall and the vertical wall **32**. The end portion **36** of the inner wall **14** will urge the vertical wall **32** outwardly into misalignment with the outer wall **12** when the heating ring **20** has softened the adjoining surfaces sufficiently to permit the surfaces to be disjoined. The force of the inner wall due to its compression when the sealing operation was performed disjoins the adjoining surfaces thereby opening the can wherein the housewife may easily lift the closure **28** from the container **10**. It will be noted that the flared inner surface of the inner wall **14** provides a convenient pouring spout for the

contents of the can or container **10**. The container may be made of a transparent plastic thereby providing a view of the product inside or the container may be tinted in various shades in harmony with the commodity in the container thereby making the device more attractive and more saleable. Obviously, this eliminates the use of metal cans and further eliminates the use of rust producing containers and the necessity for removing the contents from such containers for storing while in an open condition. This invention further eliminates the expensive and complicated seaming machines used in conjunction with metal cans and it also eliminates the use of complicated and dangerous can openers and accompanying sharp edges. This container closure is opened by merely inserting the plug into a household outlet and awaiting the disjoining of the fused surfaces.

From the foregoing, the construction and operation of the device will be readily understood and further explanation is believed to be unnecessary. However, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the appended claim.

What is claimed as new is as follows:

A sealed container comprising: a plastic cylinder open at its top, spaced axially extending circumferential ribs on top of the cylinder, a plastic closure provided with a depending vertical wall having the lower edge thereof abutting the top of the cylinder, a metallic heating ring interposed between the closure and the cylinder and having slots therein accommodating said ribs, a liner in the cylinder including an inwardly bowed upper portion extending above the top of the container and having a free edge engaging under tension the vertical wall of the cover, and means on said ring whereby said ring may be heated to fuse the adjacent plastic surfaces of the closure and container together and to said ring.

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