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TUBULAR CONTAINER AND PRESSURE TIGHT CLOSURE

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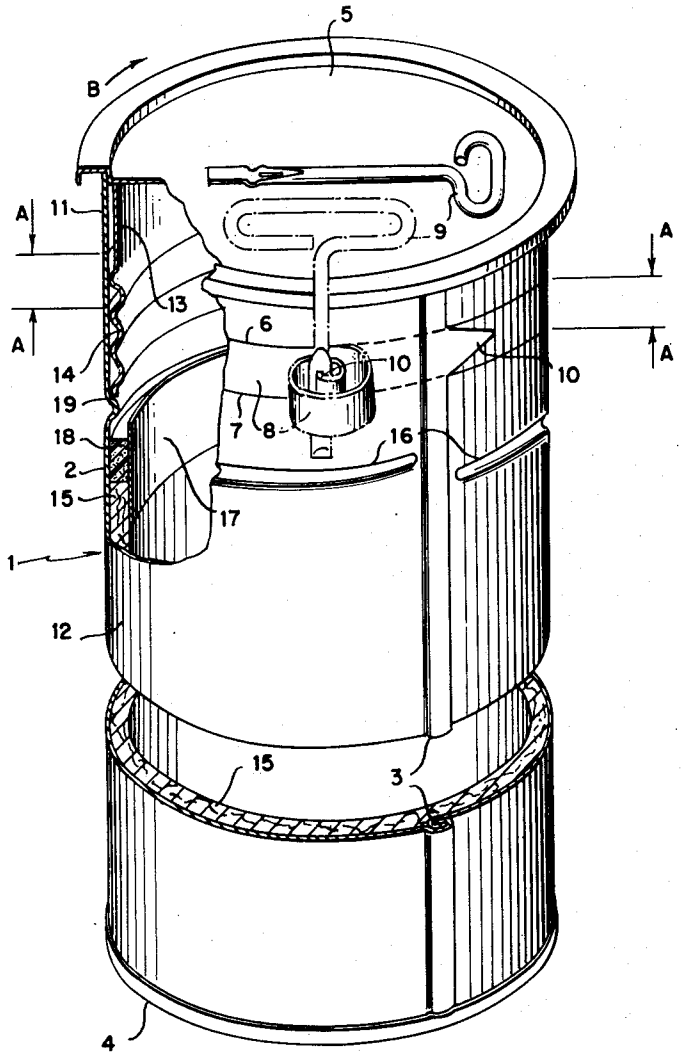

INVENTOR.

John Fitch

BY

Adams, Forward and McLean

ATTORNEYS

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TUBULAR CONTAINER AND PRESSURE TIGHT CLOSURE

John C. A. Fitch, Bloomfield, N. J., assignor to Standard Container, Inc., Rockaway, N. J., a corporation of New Jersey

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1 Claim. (Cl. 220—54)

1

This invention relates to a container with a pressure-tight adjustable closure means used to meet a specific packaging problem. In particular, my invention provides a quick-opening tear strip can designed to contain a military rocket which can be resealed after removal of the tear strip opening device in a mechanically secure pressure-tight hermetic closure.

The "bazooka" (3.5") rocket for example is conventionally packaged in a tubular metallic container equipped with a tear strip opening device. Essentially the rocket container is similar to conventional tear strip cans, comprising a tubular container with a circular top and bottom, usually sealed by a crimped and soldered seam. Conventionally, the tubular section of the container is formed from sheet metal which has been rolled with the edges of the sheet folded over each other and soldered together in an interlocked seam. In forming the tear strip, the edge of the rolled sheet which forms the outer side of the seam is extended at one point a short distance beyond the seam to form a loose flap. A pair of parallel lines are scribed about the container enclosing the flap thus delineating the tear strip. As is well known, the customary manner of opening a tear strip container is to insert the flap into a slotted opening on a crank or key. The key is then rotated in a direction to wind the tear strip about the key and separate the strip from the rest of the tubular section of the container along the scribed lines. Thus the container is divided into an upper and a lower section.

In packaging 3.5 inch rockets, metallic containers having tear strip opening devices have been found extremely useful. The container is hermetically sealed and water-tight and thus protects the rocket from atmospheric moisture and other conditions which might tend to deteriorate the propellant and cause misfires. The metallic body of the container protects the rocket against damage during handling. A cardboard sleeve is generally employed within the container to prevent abrasive contact between the metal walls of the container and the rocket and also to absorb shocks during handling. The tear strip opening device permits the container to be readily opened without requiring special tools and instruments. The only tool required is the slotted key which, being an inexpensive item, is customarily soldered to a portion of the container and removed by a simple bending or twisting motion which breaks free the soldered connection.

Combat experience has shown, however, that

2

the tear strip container for rockets is subject to several disadvantages which can be extremely serious. These disadvantages arise when the rockets are distributed and handled during action. Although the tear strip opening is quick and convenient, by its very nature it is not readily resealed. Distribution to the infantry man or rocket team, moreover, is necessarily periodic in advance of action, usually at supply points behind the combat lines. In the field under combat conditions, the rocket containers are opened in preparation for battle as a precaution against surprise and in order to be able to keep pace with rapid firing demands when conditions require it. This practice, however, results in large numbers of rockets lying about or being carried around in opened containers in free contact with the atmospheric moisture. Often their position is on the ground which further subjects the rockets to moisture attack since the opened container affords little protection in the event of dampness, rain and similar conditions. In addition, the opened rocket containers are difficult to transport because of the hazard of the rockets falling free.

As a result, there is a large loss of rocket ammunition from deterioration of the propellant and damage in handling after the containers have been opened. It is therefore an object of my invention to provide a tear strip container specifically designed for a military rocket such as a 3.5 inch or a 2.75" aircraft rocket, and similar articles, which can be resealed in a pressure-tight hermetic closure after removal of the tear strip. It is also an object of my invention to provide such resealing means in a tear strip can which can be closed in tight mechanical connection and at the same time may be reopened on a moment's notice with a minimum of effort. My invention comprises a closed tubular container which is provided with a tear strip opening device dividing it into an upper and a lower section; in the upper section of the tubular container is provided a sleeve inside the tubular wall of the container extending downwardly within the container and terminating below the upper scribed edge of the tear strip in a helically corrugated portion, in the lower section an internal annular rubber gasket is provided in sealing engagement with the wall of the container. The rubber gasket is positioned so that, when the tear strip is removed and the upper section is moved toward the lower section, the lower edge of the helically corrugated sleeve in the upper section is brought to bear against the rubber gasket. The upper surface of the rubber gasket, therefore, must be positioned a dis-

tance below the lower edge of the corrugated sleeve which is less than the width of the tear strip. In order to complete the container and provide the tight mechanical connection, the side wall of the lower section of the tubular container has a short helically corrugated portion positioned above the upper surface of the rubber gasket and below the lower scribed edge of the tear strip. Thus, when the tear strip is removed, the upper section of the container may be pushed downwardly toward the lower section with the sleeve in the upper section extending within the lower section until its corrugated portion engages with the corrugated portion on the side wall of the lower section of the container. Then a simple rotating motion engages the two corrugated portions and brings the lower edge of the sleeve to bear against the rubber gasket in a manner providing a pressure-tight closure which is mechanically secure and which may be removed with a simple twist and pull.

The drawing is a partially sectioned isometric view of a tear strip container particularly adapted, according to my invention, to package a 3.5 inch rocket.

Referring to the drawing, a tubular metallic container 1 is formed of a tubular side wall 2 suitably formed from sheet metal rolled into a cylinder with a soldered interlocking seam 3 joining the edges of the metal sheet to form the cylinder. Bottom plate 4 and top plate 5 are soldered or otherwise joined to the ends of cylinder 2 to form a closed can.

Two parallel lines 6 and 7 scribed about the circumference of the can delineate tear strip 8 which is adapted to be removed by inserting slotted key 9 over flap 10, formed at seam 3, winding the key and thus removing tear strip 8 along lines 6 and 7 so as to divide container 1 into two main sections, upper section 11 and lower section 12. In the drawing, slotted key 9 and flap 10 are shown in solid lines to indicate the initial assembled position. The dotted line position illustrates key 9 fitted over flap 10 with a length of tear strip 8 wound on key 9 partially opening the can.

Sleeve 13 is fixed within side wall 2 of can 1 and is attached to the upper section 11. The lower portion of sleeve 13 is helically grooved or corrugated, forming thread type engaging member 14 which extends to at least below upper scribed edge 6 of tear strip 8 and preferably extends below lower scribed edge 7 of tear strip 8, as illustrated in the drawing.

Lower section 12 of container 1 is provided with a paper or cardboard liner sleeve 15. A helical groove or corrugation 16 extends around

side wall 2 just below corrugated portion 14 of sleeve 13 so that when tear strip 8 is removed and the two sections of the can are brought together as indicated by arrows A, corrugated portion 14 of sleeve 13 engages with corrugation 16 of lower section 12. A rotating motion in the direction of arrow B will lock the two portions in threaded engagement so that they cannot be removed except by opposite rotation.

An inner sleeve 17 of short cylindrical section which may be mounted upon liner 15 in a manner extending above its upper edge retains annular sponge rubber gasket 18. When upper section 11 is rotated downwardly toward lower section 12 as indicated by arrows A and B, the lower edge 19 of corrugated portion 14 bears against gasket 18 providing a secure and pressure-tight closure therewith.

It will be evident that while I have described a tear strip container which is designed to meet a specific problem, the device illustrated may be applicable to other packaging problems where convenience and quickness of opening combined with capacity for resealing are desired. The container moreover is suited for packaging other military rockets than that described. For example, the pressure of rapid rearmament of aircraft in the field or aboard carriers makes the container particularly suitable for packaging aerial rockets, e. g. the 2.75 aircraft rocket.

I claim:

A tear strip can having a pressure-tight adjustable closure device which comprises a closed tubular metallic container; a tear strip scribed about said container dividing the container into an upper section and a lower section; a cylindrical sleeve affixed to the inner side of the upper section of said tubular container extending downwardly therein and terminating in a helically corrugated portion extending below the upper scribed edge of the tear strip; an annular rubber gasket retained tightly against the tubular wall of the lower section of the container and positioned a distance below the lower edge of the corrugated portion of said sleeve less than the width of the tear strip; and a helically corrugated portion on the side wall of the lower section of said tubular container adapted to engage with the corrugated portion of the sleeve affixed to the upper section of the container when the tear strip is removed and the upper section is rotatably displaced downwardly into the lower section thereby resealing the container.

JOHN C. A. FITCH.

No references cited.