United States Patent [19]

Beierle

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[54] **BARREL TOP FASTENER**

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[52] **U.S. Cl.** ..... **220/60 R,** 220/59

[51] **Int. Cl.** **B65d 43/10**

[58] **Field of Search** 220/60, 59; 217/81, 89; 229/5.7, 47

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Attorney, Agent, or Firm—Keith S. Bergman

[57] **ABSTRACT**

A non-reusable lid, for barrels having a peripheral rim, with plural spaced spring clips on the inside, outwardly movable to allow downward movement of the lid over the barrel but biased inwardly to catch against the barrel top rim. Sealing and upward pressure to maintain the clips in fastened position is caused by an annular sponge rubber gasket attached to the lid inner surface between it and the barrel top.

4 Claims, 6 Drawing Figures

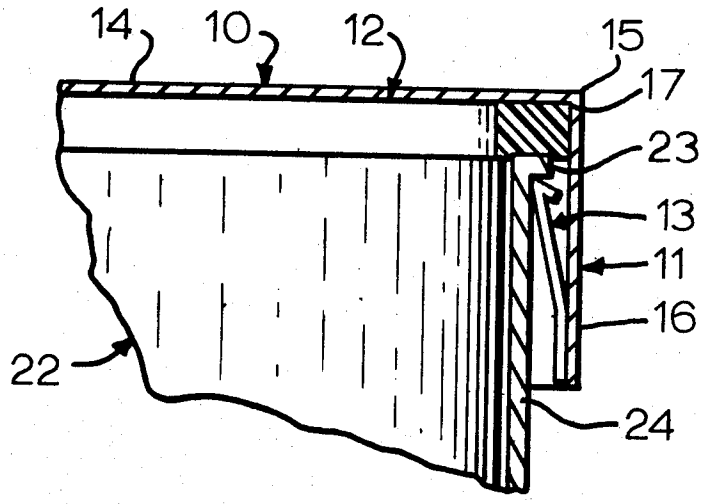


FIG. 1

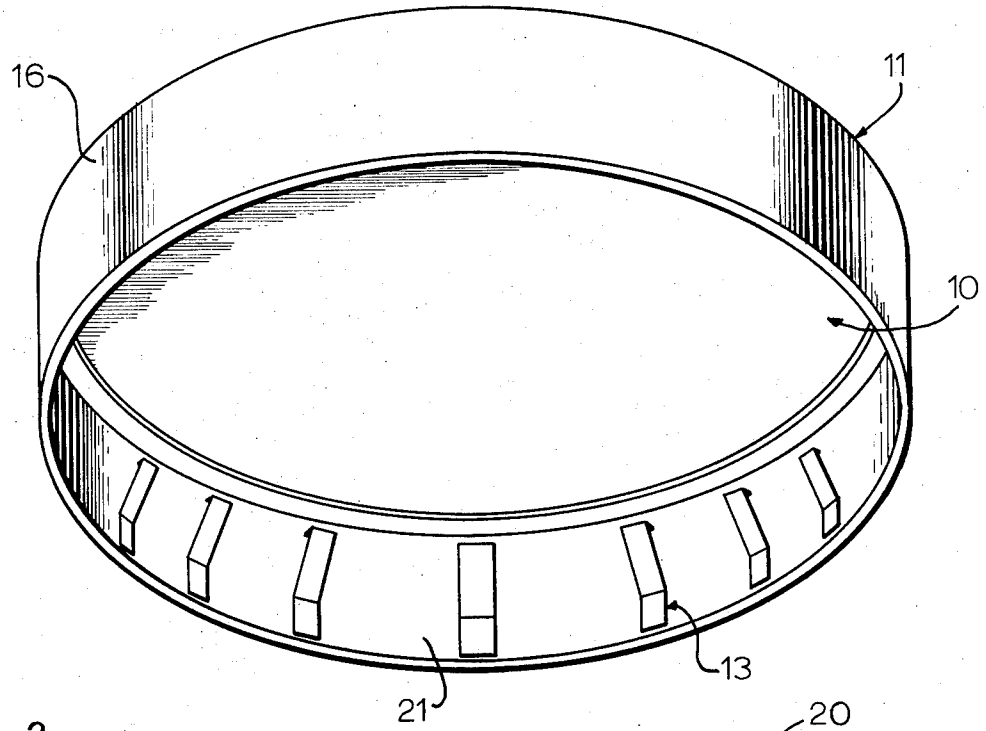
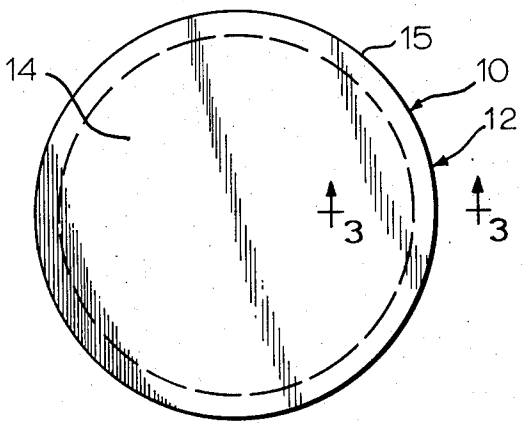


FIG. 2



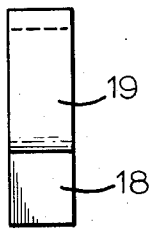


FIG. 4

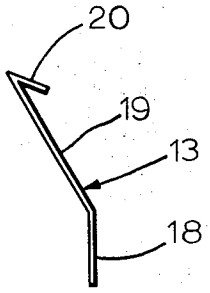


FIG. 5

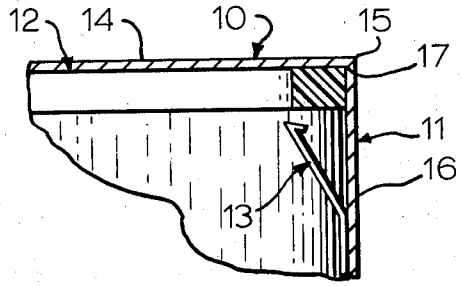


FIG. 3

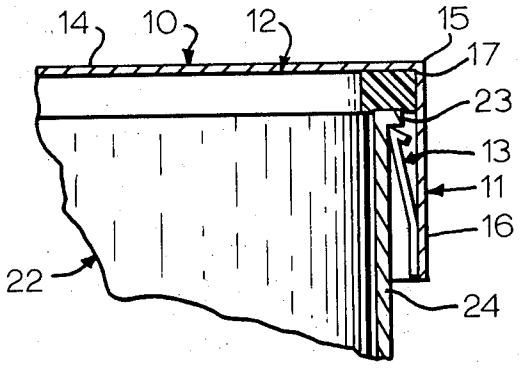


FIG. 6

BARREL TOP FASTENER

BACKGROUND OF INVENTION

RELATED APPLICATIONS

There are no applications related hereto filed in this or any foreign country.

FIELD OF INVENTION

My invention relates generally to barrel lids and more particularly to non-reusable, self-fastening lids that may be attached for sealable maintenance by downward pressure.

DESCRIPTION OF PRIOR ART

These devices may be divided for analysis into a first class of tops that fit, based upon necessarily related function and structural characteristics, inside the covered barrel and a second class that fit about the exterior. This second class may again be distinguished into a first sub-group including tops that are fastened in position by auxiliary or external means and a second subgroup, in which this invention falls, including tops having integral self-contained fastening means. The instant invention is further distinguished in this class by providing a top primarily of a non-reusable, single use type.

The instant invention is adapted for waste disposal and particularly for use with waste of a high pollution potential. The structural features providing this adaptability distinguish my invention from the prior art. The fastening means are sure of operation to create a positive seal upon placement of the top without the aid of tools. The fastening means are internally contained for protection from external dislodgment forces, whether accidental or purposeful. They create a relatively permanent seal of top to barrel, but one that could with appropriate tools and effort be released. My top and sealing means may be used with ordinary metallic barrels of commerce without any change. An annular sealing gasket is provided between barrel and top to maintain barrel contents and additionally create a separating force between the elements which tends to enhance the fastening and sealing. All of these features distinguish my invention from the known members of the subgroup of barrel tops in which it is classified.

SUMMARY OF INVENTION

My invention provides a novel, generally non-reusable, self-fastening barrel top, particularly for sealing waste barrels of commerce in a secure manner without the use of tools and by the application of downward pressure.

I provide a flat, circular top element circumferentially joined to a short depending cylindrical band to form a shallow pan-type configuration with low vertical sidewalls. Plural spaced spring clips attach to the inner surface of the sidewall to extend inwardly and upwardly to terminate in co-planar horizontal upper portions a spaced distance below the top element. These clips are biased to an inward position but movable outwardly at least a distance equal to the external projection of a barrel rim from the barrel sidewall. An annular resilient sealing gasket is attached to the inner surface of the top to seat against the barrel rim upon closure.

To install my top on a barrel having an upper rim, it is placed over the barrel top and forced downwardly.

As it moves the spring clips move outwardly to allow the top to move downward to seat the top gasket against the barrel top uppermost parts, at which point the tops of the clips, which are now below the top barrel rim, move inwardly to seat immediately below the upper rim of the barrel to fasten the top in place.

In providing such a device it is:

A principal object of my invention to provide a top or lid for capping non-reusable waste barrels having an outwardly projecting upper rim, wherein closure is achieved without the use of tools by placing the lid over the barrel and forcing it downwardly until fastened.

A further object of my invention to provide such a lid that covers the fastening means to prevent accidental release and render intention release difficult.

A further object to provide such a lid that is attached by simple inwardly biased spring clips, to an ordinary metallic barrel of commerce having an enlarged top rim.

A still further object of my invention to provide such a lid that is of new and novel design, of rugged and durable nature, of simple and economic manufacture and one otherwise well adapted to the uses and purposes for which it is intended.

Other and further objects of my invention will appear from the following specifications and accompanying drawings which form a part hereof. In carrying out the objects of my invention, however, it is to be understood that its essential features are susceptible of change in design and structural arrangement with only one preferred and practical embodiment being set forth in the accompanying drawings as required.

BRIEF DESCRIPTION OF DRAWINGS

In the accompanying drawings which form a part hereof and wherein like numbers of reference refer to similar parts throughout:

FIG. **1** is an isometric view, looking upwardly, of the barrel top of my invention showing its elements, their configuration and relationship.

FIG. **2** is an orthographic top view somewhat reduced, of the top of FIG. **1.**

FIG. **3** is a partial vertical sectional view of the top of FIG. **2** taken on the line **3—3** thereon in the direction indicated by the arrows.

FIG. **4** is an orthographic surface view of the clip of my invention showing its details.

FIG. **5** is an orthographic side view of the clip of FIG. **4.**

FIG. **6** is a partial sectional view, taken similarly to that of FIG. **3,** but showing my top in fastened position on a barrel.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings in more detail and particularly to that of FIG. **1,** it will there be seen that my invention generally comprises top element **10,** with annular seal **12** on its under surface, peripherally carrying a depending side **11** with plural fastening clips **13** spaced on the inner surface thereof.

Top element **10** is a planar, generally circular component, **14** of configuration similar to a barrel to be covered and dimensioned slightly larger so that its periphery **15** extends radially just beyond the outermost projection of the barrel top. The dimensioning must be just sufficient to allow the clips of the completed lid, when

retracted, to pass downwardly over the outer surface of the top rim of a barrel to be covered. The top is formed of material having sufficient rigidity and mechanical strength to secure barrel closure and one impervious to diffusion and chemical interactions of stored matter. Generally it would be formed from the same material as the barrel to be covered, and commonly this material is steel.

Side element **11,** of a like material, is formed as a shallow cylinder **16,** with configuration and dimension such as to fit with its radially inner surface immediately adjacent the periphery of the top. This element may be unitarily formed with the top or is joined to it by appropriate means **17,** as in this instance welding to the periphery of the top element, to create the shallow pan-like structure illustrated.

As seen in FIGS. **4** and **5,** clips **13** are thin elongate elements formed of a rigid but resilient material providing sufficient elasticity to return the element to original shape after deformation. Each element has a lower fastening portion **18**; medial, angularly disposed, upwardly and inwardly extending body portion **19**; and acutely angled outwardly and downwardly extending end portion **20.** A plurality of these clips is attached in spaced fashion about the inner surface **21** of side **11** to extend upwardly and inwardly. The clips are so arrayed that the uppermost parts of end portions **20** are coplanar, in a plane parallel to and at a spaced distance below top **10,** such that they catch the top rim of a barrel to be capped when my invention is in sealable position thereon. The fastening portions of the clips are mechanically attached to side **11,** in the illustrated instance by welding.

Annular sponge rubber gasket **12** of rectangular cross-section is mechanically attached, in this instance by adhesion, to the under-surface of top component **14** immediately radially inwardly adjacent side element **11** to form a seal between covered barrel and top. The gasket is constructed of resilient sealing material of commerce compatible with stored matter and with such configuration to cause an appropriate seal.

Having thusly described my invention, its operation may now be understood.

Firstly a top member is formed according to the foregoing specifications, of appropriate dimension and configuration to fit a particular barrel **22** having an enlarged upper lip **23** with some portion extending a short distance radially outwardly from barrel sides **24.** This structure is standard in most steel barrels of commerce, and my invention is limited to use on this type of barrel. Most commercial barrels are of reasonably standardized size, but obviously my top member must be separately dimensioned for each different size or configuration.

To use my device it is placed, with the side extending downwardly, over the open top of barrel **22.** Downward force is applied, generally manually by the installer, to move the top member downward thereby causing barrel lip **14** to move clips **13** outwardly against their bias until the lip slides therepast. The clips then move inwardly in response to their bias to come to rest against the barrel side **24.** Positioning of the clips on side element **11** is such that when in catching position, gasket **12** will be deformed against barrel top **23** to cause a seal between the barrel and top. The lid in this position is securely attached to the barrel. Upward force on the lid caused by the deformed gasket wedges clips **13** against the lower surface of the top rim of the covered barrel.

It is to be noted that while my invention is particularly described as a means of closing non-reusable waste barrels, it is not essentially limited in this respect. The spring biased fasteners might all be simultaneously moved outwardly by an appropriate tool to re-open the lid if necessary.

The foregoing description of my invention is necessarily of a detailed nature so that a specific embodiment of it might be set forth as required, but it is to be understood that various modifications of detail, rearrangement and multiplication of parts may be resorted to without departing from its spirit, essence or scope.

Having thusly described my invention, what I desire to protect by Letters Patent, and

What I claim is:

1. A self-fastening top for barrels having a top rim extending outwardly from the barrel side comprising, in combination:

a planar top element of configuration similar to a barrel to be covered and of dimension slightly greater than that of the top rim of the said barrel;

a structurally communicating perpendicular side depending some distance below the top rim of the barrel to be covered and at a spaced distance externally thereof; and

plural, semi-rigid, elastic, circumferentially spaced fastening clips carried by the lower inner surface of the side, each of said fastening clips having an upwardly and radially inwardly extending body structurally communicating with radially outwardly extending end, terminating at a spaced distance from the inner surface of said side, the uppermost portion of all said fastening clips terminating in a plane parallel to and at a spaced distance below the top component so that said top is in sealing position on a barrel to be covered when the fastening clips are engaged below the top rim thereof.

2. The invention of claim **1** further characterized by:

an annular gasket, of some thickness and shape similar to the top rim of a barrel to be covered, carried by the under surface of the top component to sealably communicate with the top rim of a barrel to be covered when the top is in fastened position thereon.

3. The invention of claim **1** further characterized by:

the ends of the fastening clips extending downwardly as well as radially outwardly from their joinder with the clip bodies to present an acute joinder angle to aid fastening of the clips under the rim of a barrel to be covered.

4. In a barrel having a peripheral top rim:

the top of claim **1** installed thereon and sealed thereto.

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