May 20, 1930. F. J. O'BRIEN 1,759,274

RECEPTACLE, CLOSURE

Filed Feb. 10, 1927

FIG. 1.

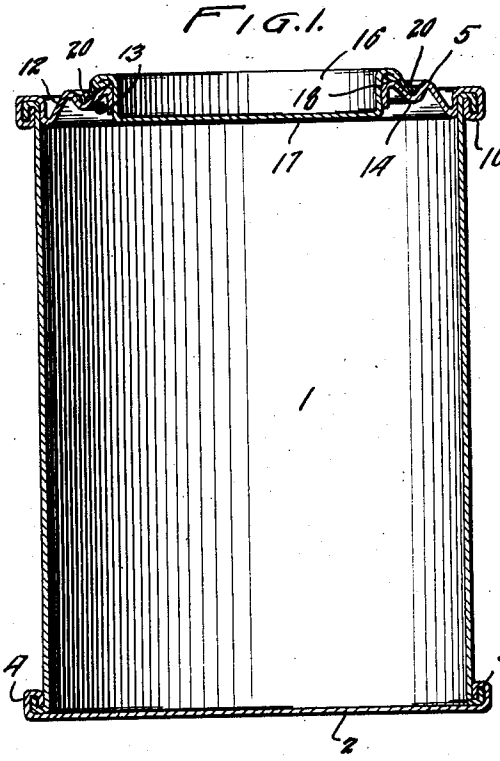


FIG. 2.

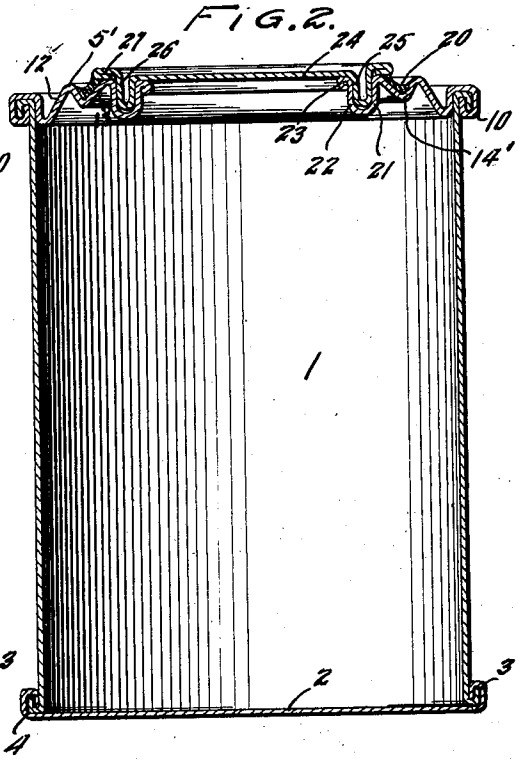


FIG 3

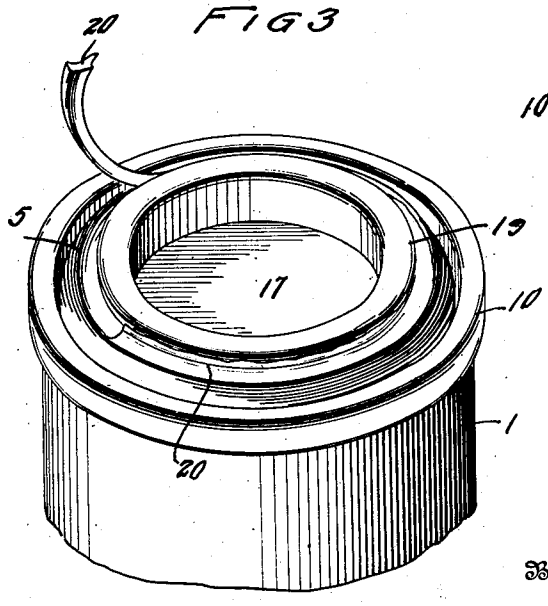
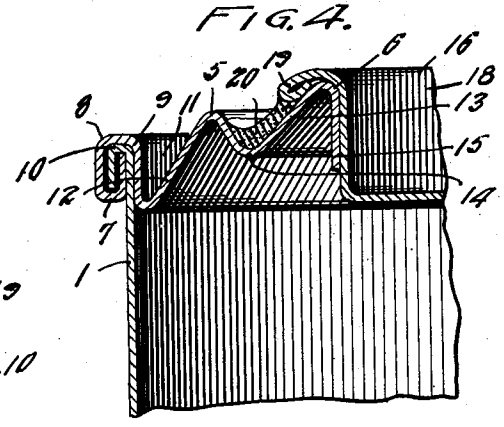


FIG. 4.



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UNITED STATES PATENT OFFICE

FRANK J. O'BRIEN, OF BALTIMORE, MARYLAND, ASSIGNOR, BY MESNE ASSIGNMENTS, TO CONTINENTAL CAN COMPANY, INC., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK

RECEPTACLE CLOSURE

Application filed February 10, 1927. Serial No. 167,223.

This invention relates to improvements in closures for receptacles and more particularly to a vacuum seal can cover.

Heretofore receptacles which have been sold as vacuum packages have presented certain disadvantages. In one type the body of the container is formed with a scored section adapted to be stripped from the can. In many cases the strip did not tear out uniformly and as a result left a jagged edge. In other instances the strip did not tear out completely, thus putting the operator to the inconvenience of using a can opening tool. This condition of the can resulted in the infliction of numerous injuries.

A second type of vacuum receptacle is provided with a scored top. In these when the strip was torn out there remained a loosely fitting cover which would not effectually protect the contents. In addition to this the removal of the metallic strip was a hazardous operation, subjecting the operator to possible injuries.

It is an object of this invention to provide a novel combined hermetic and friction seal for a receptacle.

Another object is to produce a vacuum can which may be opened without destroying any integral parts.

Yet another object is to provide a can adapted to be hermetically sealed with a non-metallic substance.

Still another object is to provide a can top having a replaceable cover which may be hermetically sealed to a container.

A further object is to provide a can having a removable cover and a cooperating plastic seal.

With these and other equally important objects in view, the invention comprehends the provision of a can having a top of novel design, in which may be embedded a detachable cover and a plastic material cooperating with the top and a cover to insure a perfect hermetical seal.

To enable others to more readily understand the invention, I have shown a preferred embodiment of it in the accompanying drawings. In these the same numerals refer to similar parts throughout the several views of which:

Figure 1 is a vertical section of a can embodying the invention.

Fig. 2 is a view similar to Figure 1 showing a modified form of cover.

Fig. 3 is a perspective view of the upper portion of the can.

Fig. 4 is a detail section view of the device shown in Figure 1.

The receptacle comprises a body portion 1, a bottom 2, and a composite top. In general the material used is sheet metal although it is to be understood that the invention is not necessarily limited to any particular kind of material.

The bottom plate 2 is bent at its circumference to present a U-shaped flange 3 in the interior channel of which is received the terminal ribs 4 of the can body. These members are crimped to give a double seam structure, which insures a tight joint between the separate parts in addition to strengthening the receptacle.

Secured to the upper end of the can is the closure; this includes a cover member 5 and a cap 16. At its exterior periphery the top 5 is bent to form a U-shaped channeled flange 7. The metal of the top is bent as at 8 and 9 to provide a ledge which seats on the base of the channel flange formed by the upper edge 10 of the can body. As shown, the top is formed with a substantially vertical wall 11 which abuts the rim of the body of the can. The nested metal sections 7 and 10 are crimped by any suitable means to provide a convenient and effective rim seal between the top and body. It is to be understood that the description of the seal is to exemplify but one method of forming the can. The same result may be accomplished by soldering or otherwise joining the several parts, without exceeding the scope of this invention.

From the base of the wall 11 the cover is extended to form walls 12 and 13. Although the wall 12 is shown as being inclined, it will be appreciated that it may be made flat. The top may be made with any desired configuration which will embody the underlying principles of the invention. As shown in Figure

4 the metal at this portion is bent so as to form an intermediate groove 14, the function of which will be described hereinafter. At its interior portion the material of the cover is bent downwardly to present a substantially vertical friction wall 15.

Cooperating with the can top is a removable cap member 16. This member has a countersunk central portion embraced within the bottom portion 17 and the integral vertical annular wall 18. At its upper end the wall 18 is curved to conform generally to the curvature of the adjacent section of the can top. At its peripheral edge the cap is provided with a bead 19, which may be formed by lapping the edge of the metal cover. When the cap is inserted in the top, the wall 18 is forced into firm frictional contact with the friction seat 15. Due to the elongation of the seat 15 a considerable friction engagement area is provided thereby insuring a more effective friction seal. It is to be observed that the bottom 17 and the lower portion of the annular wall 18 project beyond the lower edge of the friction seat 15. This precludes accumulation of material on the friction face of seat 15 and thus insures a clean frictional engaging surface. When the cap is in its closed position the bead 19 is slightly spaced from the adjacent wall 13. In this space a tool may be inserted for the purpose of prying off the cap in the usual manner.

In addition to the friction seal previously described I propose to provide the cover with a simple and efficient hermetic seal. I accomplish this by interposing between the cap and can top a plastic material. I prefer to use a special latex composition, although it is to be understood that any other suitable plastic may be employed. For example, I may use such material as artificial aqueous rubber emulsions or solutions of rubber in volatile organic solvents. If a plastic is used which is normally solid it may be heated to a suitable temperature to obtain the desired plasticity and thus insure a ready flow. The sealing medium is then deposited in the groove 14. The composition fills the groove and the space between the bead 19 and wall 13. On cooling or drying the sealing material solidifies thereby forming an air tight sealing gasket for the container.

When it is desired to open the can, the seal 20 is broken at any point and the entire member stripped from the can. My reason of the resiliency of the special sealing medium and its tapered seal tip, (shown particularly in Figure 3), the band may be easily removed as one strip. This I conceive to be a distinct advantage inasmuch as it provides a means by which the seal may be removed with a minimum of effort and without any danger of injury to the operator. After the vacuum seal has been removed the cover and top thereafter cooperate to provide a friction sealed can.

In Figure 2 I have shown a modification of the invention. This in its general features is similar to the device previously described. It comprises a container having side walls 1 and a bottom 2, which are crimped or otherwise fastened together through the intermediacy of flanges 4 and lip 3. In like manner a top 5′ and the side are crimped to provide a double seal joint.

The can top includes inclined wall sections 12′ and 13′ and an interposed groove 14′, thereby providing a corrugated and strengthened top. In this structure the top is formed with a channeled flange at its interior edge. The vertical sides 21 and 22 of the channel grooves form two spaced friction walls. The interior peripheral edge of the top is formed with a bead 23 to increase the rigidity of the structure and form a seat for the cap.

The central body portion 24 of the cap member is bent near the edge to present a depending channel section. This channel section includes vertical walls 25 and 26. The wall 26 is turned at its upper end to form a beaded ledge 27. It will be apparent that when the cap is forced into the top the vertical walls 25 and 26 will frictionally engage the contiguous walls 21 and 22 of the top, and will be maintained in close contact by reason of the inherent resiliency of the cap. It will be obvious that this structure provides a seal of a very effective character, there being two separate friction surfaces on both the cap and top.

When it is desired to hermetically seal this type of container, it may be done in the manner already described. The sealing material may be gently heated to insure a ready flow and the material then poured into the groove 14′. As the fluid rises it will fill in tne gap existing between the wall 13′ and the bead 27. On solidifying, the composition forms a tough elastic seal, which adheres firmly to adjacent metal surfaces. This seal is not disrupted or displaced by any jarring of the can and thus has a decided advantage over frangible seals of the wax type. When it is desired to remove the seal it may be cut and stripped from the can as one piece in the manner described.

It will now be appreciated that I have provided a combined hermetical and vacuum container, which is simple in the extreme. It comprises relatively few parts, which are susceptible of easy assemblage and removal. The container may be opened without subjecting the operator to any danger of injury, since the hermetic seal may be broken without destroying any integral parts of the top or can or without disrupting any metallic structure. By applying the seal composition in the manner described, it can never come in contact with that part of the top through which the contents are removed. This choice

of position assures the removal of the contents in a sanitary condition.

While I have herein shown and described the preferred embodiment of my invention it is to be understood that this is merely for the purpose of exemplification, for since the underlying features may be incorporated in other specific structures, I do not intend to be limited to those shown except in so far as such limitations are clearly imposed by the appended claim.

I claim:

A can comprising a body portion, an apertured top adapted to be secured to said body portion by a double seam, said top having a depending vertical wall at the opening therein forming a friction seat, said top intermediate said vertical wall and the double seam being bent to form a trough, the bottom of which inclines upwardly to said vertical wall, a removable cap having a depressed portion forming a friction plug adapted to engage the friction seat on said top for mechanically securing said cap to said top, said cap having the peripheral portion thereof extending over said top and a portion of said trough, and a hermetic sealing material disposed in said trough and engaging the under side of said peripheral projecting portion of the cover for forming a seal between the cover and the top.

In testimony whereof I affix my signature.

FRANK J. O'BRIEN.