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E. SMITH

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CLOSURE FOR RECEPTACLES

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Fig. 1.

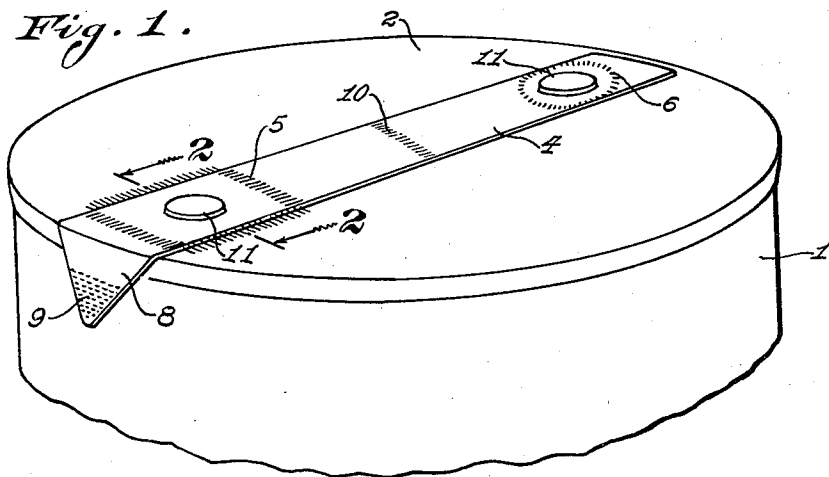


Fig. 3.

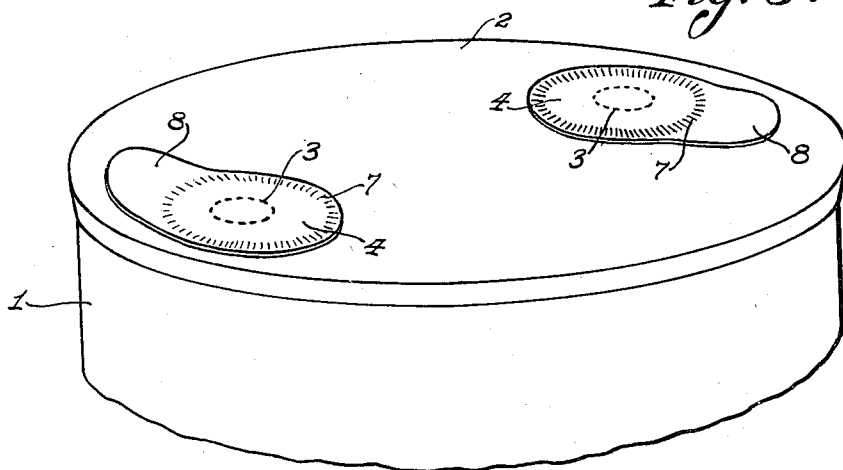


Fig. 4.

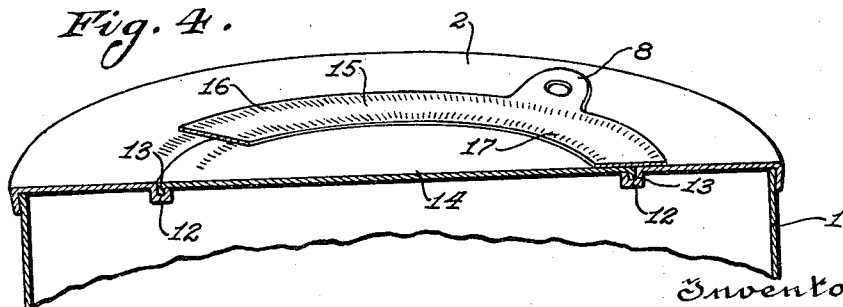
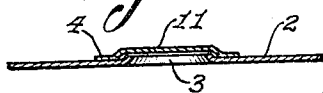


Fig. 2.



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CLOSURE FOR RECEPTACLES

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Application September 15, 1933, Serial No. 689,543

1 Claim. (Cl. 220—53)

This invention pertains to closures for receptacles, more particularly metal cans and the like.

Most metal containers, such as cans, as they are now used to contain, for instance, condensed milk, are received by the consumer in a sealed condition and without special means for opening the container or breaking the seal. The usual method of opening such a container, particularly condensed milk cans and the like, is to perforate the top of the can in one or more places. This usually requires the employment of a sharp instrument and when this operation is performed in the ordinary household such an implement as an ice-pick is usually employed. With other containers for such things as canned soups, vegetables and the like the cans are received in a similar sealed condition and must be opened by the use of some sharp instrument, such as a can opener. These instruments in the hands of the usual housewife are sources of frequent injury to the user in an effort to penetrate the metallic top of such a container. Such injuries are not only painful but are often subject to infection so that serious consequences may follow.

One of the objects of this invention, therefore, is to provide a closure for a receptacle of this type which may be opened or removed without requiring the use of any implement liable to cause injury.

Another object is to provide such closure which may be opened or removed by the hands or fingers unaided by any mechanical means.

Another object is to provide a closure affording a perfect seal, hermetically, for the container which will withstand the strains of ordinary handling during manufacture and shipment but which may be opened simply with the fingers and without requiring the assistance of any implement.

Further objects will appear from the following description taken in connection with the accompanying drawing, in which:—

Figure 1 is a perspective view of a can top embodying this invention;

Figure 2 is a sectional detail on line 2—2 of Figure 1;

Figure 3 is a view similar to Figure 1 illustrating another embodiment of this invention;

Figure 4 is a perspective view partly in section illustrating another embodiment of this invention adapted for closing a large opening.

Referring now to the drawing, 1 designates a can or other container having a top 2. The top

2 is provided with one or more perforations 3, each providing a dispensing opening. In Figures 1 and 3 these are small openings placed at opposite sides of the can so that, when open, one of them provides for dispensing the contents while the other permits the entrance of air as is usual in opening condensed milk cans and the like. The openings 3 are provided with a closure 4. In Figure 1 the closure 4 takes the form of a single strip of material, such as thin sheet metal, extending across the can top and covering the openings 3. The strip is then adhesively secured to the can top 2 at portions indicated at 5 and 6 in Figure 1, and at 7 in Figure 3. These indications represent lines of adhesion between the mutually engaging surfaces of the closure and the can top formed by a line or band of rupturable joining material. A material suitable for this purpose in the case of metallic cans is soft solder, or so-called soldering tin, which provides a union between the parts joined which is sufficiently secure to hermetically seal the can and to retain the closure 4 in place, but which may be ruptured by a substantial tension, such as may be applied thereto by the fingers without the assistance of any instrument. A solder suitable for this purpose is described in the British patent issued to George Lawson July 30, 1924 and numbered 225,484. The solder described in this patent contains tin, lead and zinc in proportions of one part of tin, one part of lead and one-half part of zinc. In order to facilitate this operation the closure 4 may be provided with a manipulating tab 8 and in order to provide for a firm grip of the tab 8, the same may be roughened as indicated at 9 as, for instance, by covering the area thereof with a multitude of projections, such as formed by a center punch. Such a tab may also be provided by curling over the end of the strip so as to provide an enlarged roll or by perforating the same with an enlarged perforation sufficient to provide a firm grip for the fingers as shown in Figure 4. Such a closure may then be opened by simply grasping the tab 8 firmly in the fingers and drawing the strip 4 backwardly with a peeling movement so as to tear or rupture the joining material or solder 5 to release the closure and open the openings 3.

In Figure 1 different ways of applying the joining material 5 are indicated. Any suitable manner may be employed, such as will positively secure the closure all around the opening 3 so as to hermetically seal the same. Instead of providing a tab at only one end as indicated in Fig-

ure 1, in which case the entire strip 4 is removed by successively rupturing the joining material at 5 and 6, such a tab may be provided at each end of the strip and, if desired, the latter may be secured to the can top 2 rigidly at its middle portion by a line of hard solder indicated at 10. In this case a suitable hard solder may be used such as will secure the strip rigidly enough to prevent its being completely removed from the can. This retains the closure in place on the can so that it may be folded down over the openings 3 to provide a temporary closure after the can has been originally opened.

The openings 3 may be flanged upwardly to a slight extent as indicated in Figure 2 and the strip 4 may be embossed or struck upwardly as indicated at 11 forming a cup to receive the upturned flanges of the opening 3. This forms a somewhat better seal and provides a raised edge around the opening 3 adapted to prevent the joining material 5 from flowing into the opening during the sealing operation.

In the embodiment of Figure 3 a separate closure 4 is provided over each opening. This again is secured by means of rupturable material 5 and is provided with a tab 8 for manipulation to remove the closure. In this case each closure is removed separately so that only one or both may be opened.

The embodiment of Figure 4 illustrates one way in which a can having a wide opening, such as may be used for canned vegetables, or the like, may be provided with a closure in accordance with this invention. In this case the top 2 may be provided with a depressed bead 12 providing an annular channel adapted to receive the downturned flange 13 on the rim of a cover 14. The cover 14 serves to close the enlarged dispensing opening in this can and said cover is sealed in place by means of a ring 15 secured to the top 2 and the cover 14 by lines of joining material 16 and 17 placed respectively outside and inside of the rim of the cover 14. In this case also the joining material 16 and 17 completely surrounds the opening hermetically sealing the joint between the can top and the cover. A tab 8 is formed on the rim 15 as in the other embodiments. This can may be opened in a similar manner by grasping the tab 8 and bending the same backward so as to rupture the material 16 and 17 and peel the entire ring from the can. When this has been done the cover 14 is free and may be removed.

It will be seen, therefore, that this invention provides means for sealing cans and the like in such a manner that an effective seal is provided and at the same time the receptacle may be opened in a simple manner and without requiring the use of tools or implements. This not only provides a safe-guard against injury which is al-

ways liable to result from the use of sharp implements, but renders the receptacle entirely independent of any such implement. In other words the opening may be accomplished even when there is no such implement available, as for instance, in canned foods taken on outings and the like.

It will be noted that the closure element is joined by the solder to an unembossed portion of the face of the can so that the closure does not project above the can surface, which remains flat so as not to interfere with close packing. Furthermore, the forming operation necessary for such embossing is avoided. The fact that this arrangement enables the solder to spread over an increased area is of little consequence as it is easily rupturable even when used in substantial amount.

The term "rupturable joining material" as used in this specification and the appended claim is intended to include any material such as the soft solder described which may be applied over a substantial area of the surfaces to be joined. Such soldering material must, obviously, have properties such as to withstand the treatment and handling to which the canned product is subjected in preparation and shipment. This includes the ability to withstand boiling temperature, if such is used, for instance, in the treatment of canned food after sealing, and also the ability to withstand the mechanical stresses incident to packing and shipping.

While this invention has been described as embodied in a unitary device, it will be understood, of course, that individual features or sub-combinations thereof may be useful by themselves without regard to the other features and the employment of such individual features or sub-combinations is contemplated by this invention and within the scope of the appended claim.

It is further obvious that various changes may be made, within the scope of the appended claim, in the details of construction without departing from the spirit of this invention; it is to be understood, therefore, that this invention is not limited to the specific details shown and/or described.

Having thus described the invention, what is claimed is:

In combination with a receptacle having a metallic face provided with a dispensing opening, a metallic closure element overlying said opening and having a finger tab, and a band of soldering material of substantial width joining said element with a portion of said face surrounding said opening to hermetically seal the receptacle, said soldering material having the characteristic as to ease of rupture of a solder composed of one part of tin, one part of lead and one-half part of zinc in order that the closure element may be removed by manipulation of the finger tab.

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