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CLOSURE SEAL PERFORATOR

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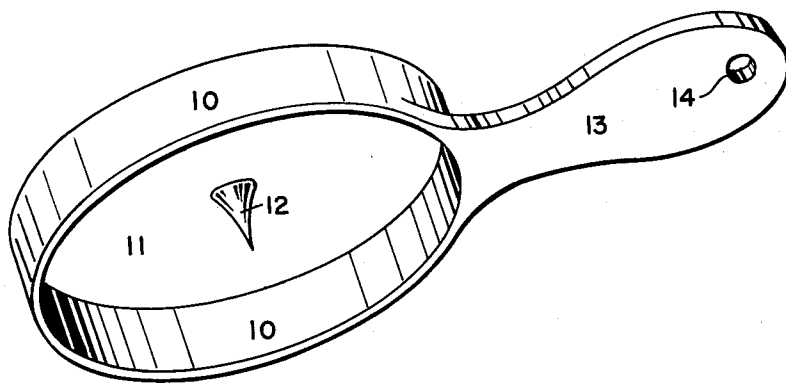


Fig. 1

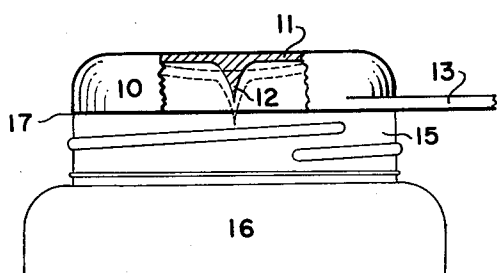


Fig. 2

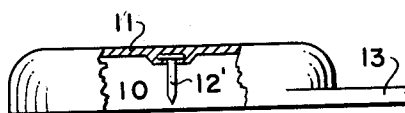


Fig. 3

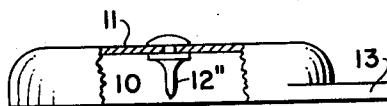


Fig. 4

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CLOSURE SEAL PERFORATOR

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1 Claim. (Cl. 220-51)

This invention relates to facilities useful in the performance of certain culinary operations, and more particularly to agencies applicable to the opening for access of sealed food containers, and has as an object to provide a novel, improved, and practical device applicable to the rupture of seals confining food products packed under reduced pressure in a manner to restrain dispersion and wastage of the packaged food material otherwise scattered when the seal is broken.

A further object of the invention is to provide a novel and improved facility manually applicable with convenience and advantage to puncture the closure seal conventionally utilized to perfect the packaging of pulverized, dry materials under reduced pressure.

A further object of the invention is to provide a novel and improved closure seal perforator applicable to relieve low pressure conditions obtained within food product containers and to inhibit waste of the container charge incident to such operation.

A further object of the invention is to provide a container seal perforator particularly adapted for manual application to rupture the closure seal of containers confining instant coffee, and similar powdered, food products, without wasteful dispersion of the packaged material upon relief of the low pressure condition whereunder it is packed.

A further object of the invention is to provide a novel and improved organization and operative correlation of elements and features constituting a closure seal perforator that is simple and economical of production, expedient of use, adapted to practical embodiment in a wide range of specifically-appropriate sizes, a diversity of materials, and preferred structural particularity, that is durable throughout a long period of repetitious use, and that is efficient in attainment of the ends for which designed.

With the foregoing and other objects in view, my invention consists in the construction, arrangement, and operative combination of elements as hereinafter set forth, pointed out in my claims, and illustrated by the accompanying drawing in which

FIGURE 1 is an isometric view of a typical embodiment of the invention as organized ready for practical use.

FIGURE 2 is a side elevation, partially in section to show otherwise concealed features, of the improvement exemplified by FIGURE 1 in its position of practical use association with a sealed container, broken lines in the view indicating an alternative operative position of certain elements featuring the device.

FIGURE 3 is a side elevational view, partially in section and similar to the analogous showing of FIGURE 2, illustrating an alternative structural organization within the contemplation of the invention.

FIGURE 4 is a side elevational view similar to FIGURE 3 illustrating a yet further modified structural organization of the improvement within the contemplation of the invention.

It has become general and very wide-spread practice to package a variety of dry, powdered food materials, such as instant coffee, in rigid containers accessible through a circular neck opening subject to pressure less than atmospheric within the container maintained by means of an impermeable sheet seal closure over the neck opening; which seal is housed within and protected by a conventional cap

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cover removably engaging the container neck until access to the charge within the container is desired. The extensive use of such packaging for food products largely in demand has forcibly brought to the attention of the consumer a disadvantage and annoyance attending initial access to a container charge so packed; experience having quite universally established that initial removal or rupture of the closure seal sheet after separation of the protective cap from the container is attended by a rush of air as the pressure within the container is balanced against the atmospheric pressure obtaining exteriorly of the container with consequent expulsion and scattering of some of the container charge outwardly through the container neck opening. In addition to being wasteful, such out-puffing of the food material expands a dispersion thereof on circumjacent areas which entails an inconvenient cleaning operation, and the instant invention is hence directed to the provision of a simple and highly practical instrumentality effective to establish initial pressure balance within and without such containers in a manner eliminating the wastage and annoyance hitherto attending such operation.

As represented by the views of the drawing, the improved perforator unit is characterized by a shallow, cylindrical cup simulation comprised from an annular, axially-narrow band 10 and a flat, circular plate member 11 fixed to and closing, preferably integrally, over and against one end of the band 10. Formed from any appropriate material in any expedient manner, the band 10 is substantially rigid and the plate member 11 is substantially impermeable and characterized by some flexibility axially of the cup which it closes; the desired properties of the elements 10 and 11 being susceptible of realization in a cup unit integrally formed by molding or pressing from the well-known synthetic resins generally known as plastics. Completing the cup comprised from the elements 10 and 11 for its intended purpose, a perforating point 12 is centrally affixed to or integrally formed with the plate member 11 to project axially and interiorly of the cup in an axial length slightly less than the open depth of the band 10, and a handle 13 is affixed to or formed integrally with the band 10 to project radially therefrom in substantially the plane of the cup open end; a hole 14 being desirably formed to intersect said handle at its free end as a means for storing the unit at any convenient location between its intervals of use.

Functionally identical with and structurally analogous to the unit represented by FIGURE 1 hereinabove described, the modified constructions according to FIGURES 3 and 4 distinguish only in the provision of a metallic insert or attachment in substitution for the integral perforating point 12 of the first embodiment. As represented by FIGURE 3, a headed, metallic, penetrating point 12', such as a tack, or the like, may be affixed centrally of the cup unit with its head embedded in the material of the plate member 11 at the time of cup production; said point 12' extending from its association with the plate member 11 an axial distance such as to space its point slightly and inwardly away from the plane of the cup open end. Alternative and somewhat similar to the arrangement according to FIGURE 3, the showing of FIGURE 4 typifies the use of a shouldered, metallic, penetrating point 12'' engaged through and secured, as by riveting of its outward end, in a hole centrally intersecting the plate member 11, said latter point corresponding in effective length with the points 12 and 12' for which it is a substitute, whereby to space its penetrative terminus slightly and inwardly away from the plane of the open end of the cup. In a further slight alternation of the construction according to FIGURE 1, the cup unit as shown in FIGURES 2, 3 and 4 is characterized by an arcuate junc-

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tion of the plate member 11 with the band 10 instead of the angular such junction typified by FIGURE 1.

Diametrically sized to register the open end margin of its band 10 with and against the open end of the neck 15 conventionally characterizing a container 16 from which the usual protective cap has been removed to expose the seal closure sheet 17 retaining a condition of reduced pressure within the container, the improvement of the instant invention constituted as shown and described is utilized by inverting the cup of the unit over the neck 15 of the container and into engagement and marginal registration with the closure seal sheet 17, thus to oppose the open end margin of the band 10 to the end margin of the container neck 15, whereafter, the unit being conveniently manipulated to and held in position of use by the handle 13, pressure is applied through a finger of the operator centrally of and exteriorly against the exposed surface of the plate member 11 for deflection of the latter inwardly of the cup and toward the container, as represented by broken lines in FIGURE 2, with consequent rupture of the closure seal sheet 17 as the perforating point of the unit penetrates the same; the housing represented by the cup of the unit functioning in its covering relation with the neck of the container to entrap and confine portions of the container charge displaced from the container as pressure balance is established between the interior of the container and atmosphere. Desired pressure balance affecting the interior of the container being immediately established after the closure seal sheet 17 has been ruptured, the device is removed, charge components entrapped therein and on the sheet 17 are collected, and said sheet is eliminated in a usual manner to complete access to the container charge.

Since changes, variations, and modifications in the form, construction and arrangement of the elements shown and described may be had without departing from the

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spirit of my invention, I wish to be understood and be limited solely by the scope of the appended claim, rather than by any details of the illustrative showing and foregoing description.

I claim as my invention:

The combination of a vacuum packed container having a marginal top edge carrying a closing seal sheet thereover in the plane thereof, and a perforator for said seal sheet removably mounted thereon, said perforator comprising an axially-shallow cup formed with an annular portion having an open end margin registering in abutting opposed coaction with said top marginal edge of said container to provide a closed chamber above said seal sheet, a depending tapered pointed projection centrally of said cup and normally retained interiorly of the cup, said projection terminating in a point disposed in vertically spaced relation from said seal sheet by a predetermined distance, and a flexible crown portion on said cup, said crown portion carrying said projection thereon and being flexible by a normal finger movement through a distance greater than said predetermined distance, whereby flexing of said crown portion downwardly causes said pointed projection to pierce said seal sheet.

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