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CONTAINER CLOSURE

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Fig. 1.

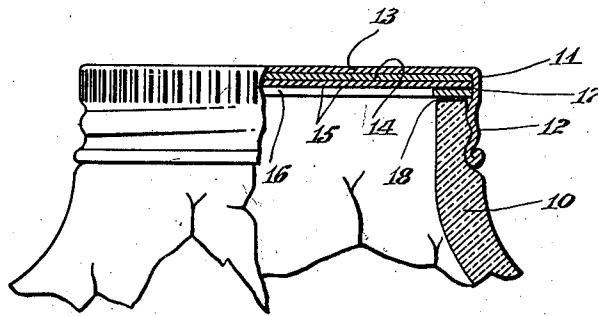
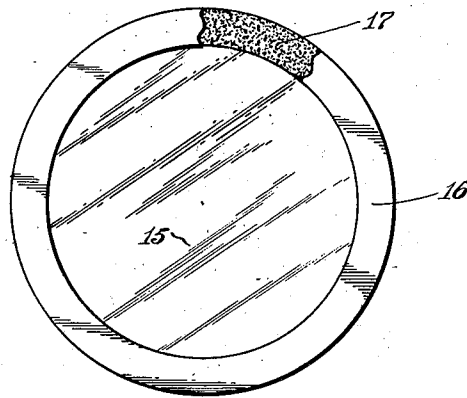


Fig. 2.



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CONTAINER CLOSURE

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10 Claims. (Cl. 215-40)

The invention relates to container closures, and more particularly to a closure of the type employing an inner seal disc cemented to the top of the neck of a container, and protected by a closure cap removably secured to the container with or without a liner positioned between the inner seal disc and the top of the cap.

Closures having an inner seal disc have heretofore been extensively used. These inner seal discs have sometimes consisted of a disc of "Cellophane" alone, or a disc of absorbent material having a central metal foil facing disc of a diameter less than that of the absorbent disc, so as to leave an edge of absorbent material which can be more effectively bonded to the glass of the neck of a container than metal foil.

An inner seal disc formed of "Cellophane" has been effectively used in the packaging of various materials, the nature of which is such as to not attack the material of the disc. When, however, the material being packaged is such that "Cellophane" cannot be used, either because of its deterioration from contact with the container contents, or because the adhesive necessarily used when cementing the "Cellophane" disc to the glass neck of the container will taint the contents or cause a destruction of the bond to an extent to permit volatile matter within the container to escape, it has been the practice to use an inner seal disc having a metal foil or other facing disc. The exposed portion of the absorbent material about the facing disc permits the formation of an effective bond or seal between the inner seal disc and the neck of the bottle by means of an adhesive or cement which could not be used with a metal foil disc.

Inner seal discs are used not only to prevent the escape of volatile matter in the merchandise being packed, but to prevent access to the container for purposes of substitution or dilution without leaving evidence that the seal of the container has been tampered with.

When packaging some kinds of merchandise, it is desirable to have the inner seal disc made of transparent material. Inner seal discs having a central facing disc of metal foil or other similar material are opaque, and while this protecting facing disc is highly desirable in the packaging of many kinds of merchandise, it cannot be used where visibility of the contents of a container through the inner seal disc is desired.

With merchandise which not only is highly volatile but has a high water content, such as vanishing creams, an inner sealing disc of "Cellophane" cannot be used, because this material

will absorb the water content of the merchandise to an extent to cause stretch or wrinkling of the "Cellophane."

There has long been a demand for a transparent inner seal closure which can be effectively used with merchandise of the character immediately above referred to, but inner seals such as are commonly used for other merchandise have been found to be unsuitable for use in packaging merchandise of the character immediately above referred to, mainly because of the action of the merchandise upon the material of the seal.

With the above conditions in mind, I have produced a closure embodying therein an inner seal disc, the portion of which about the center thereof and throughout substantially the entire opening of the neck of the bottle, is transparent, this seal being so formed that it may be cemented to the neck of the bottle by means of a substantially odorless adhesive or cement of a nature which could not be used in securing the material of the transparent disc to the neck of the bottle.

The disc must be of substantially non-absorbent material, or material which will not be affected by the water content of the merchandise to be packaged, thus being distinguished from "Cellophane" and other materials commonly used in inner seal discs for closures employed when packaging other kinds of merchandise.

I have found, in actual practice, that an inner seal disc of cellulose acetate or chlorinated rubber is sufficiently transparent to meet the demands for an inner seal disc through which the contents of a container are visible, but a disc of such material cannot be secured to a glass bottle or jar by means of a substantially odorless adhesive, or an adhesive which will have no characteristic odor which can be transmitted by absorption to the contents of the container.

Since such an adhesive cannot be used for bonding a disc of cellulose acetate or chlorinated rubber to the neck of a bottle, I have found it necessary to provide the inner seal disc, about the periphery thereof, with an annulus of absorbent material which may be firmly bonded to the material of the disc by an adhesive which will act upon both the disc and the annulus, and permit the use of a substantially odorless adhesive or cement, which will firmly anchor to said annulus and to the material of the container in securing the inner seal disc in its entirety to the container.

As will more fully appear hereinafter, the usual practice in applying closures having inner seal discs is to apply adhesive to the top of the neck of a container immediately prior to the applica-

tion of a closure, containing the inner seal disc, to the container.

An adhesive containing casein or other water soluble material, which sets by evaporation of the vehicle, has not only been found highly effective in bonding the inner seal to the neck of a container, but this adhesive is sufficiently odorless to be effectively used in connection with a closure embodying the present invention.

While other adhesives may be used in bonding the inner seal disc to the neck of a container, it is essential that any adhesive used must have the characteristic of being substantially odorless. In securing the annulus to the disc of transparent material, any adhesive, irrespective of whether or not it is odorless, may be employed, although, like the material of said disc, this adhesive should be water resistant or water insoluble.

The invention consists primarily in a container closure embodying therein an outer skirted shell adapted to be removably attached to the neck of a container, an inner seal disc within, but separable from, said shell, said inner seal disc comprising a disc of water resistant, transparent, flexible material, an annulus of absorbent material adjacent the edge of said disc and of a width substantially that of the thickness of the neck of the container, whereby said inner seal disc may be secured to the neck of a container by a substantially odorless adhesive which cannot act as a bonding medium between the material of said disc and the top of said container; and a continuous bonding stratum between said disc and said annulus; and in such other novel characteristics as are hereinafter set forth and described, and more particularly pointed out in the claims hereto appended.

Referring to the drawing,

Fig. 1 is a view of the upper portion of a jar having a closure embodying the invention applied thereto, said closure being shown partly in section; and

Fig. 2 is a bottom plan view of the inner seal disc with a portion of the annulus broken away.

Like numerals refer to like parts in both of said views.

In the embodiment of the invention shown in the drawing, the container is in the form of a jar 10, such as is commonly used for the packaging of cold creams or other merchandise of a similar character having a water content and being highly volatile.

The closure proper consists of an outer closure or shell 11 having a skirt 12, by means of which it may be secured to the neck of a container provided with threads with which the skirt may be conformed or may be shaped to conform when applying it to the bottle. The form of the skirt and the manner of securing it to the neck of a bottle is immaterial to the present invention.

The top of the shell 11 is shown at 13. There may be, and usually is, positioned within the shell, adjacent this top, a lining gasket 14 of straw board or other material commonly used in re-seal closures of various types.

Within the shell in abutting relation to, but unconnected with, the lining gasket 14, is an inner seal disc especially adapted for use in the packaging of merchandise having a water content of the character referred to above. This inner seal disc is a composite structure having an over-all disc 15 of water resistant or non-absorbent transparent material and an edge annulus 16 of fibrous or other absorbent material.

In actual use, this disc is cut from a sheet or strip of cellulose acetate or chlorinated rubber of a thickness of approximately .002 of an inch. The thickness of the disc is not material so long as it does not interfere with the visibility of the contents of a container therethrough and is readily rupturable when access to the container is desired.

I have found that a disc of cellulose acetate, chlorinated rubber or other similar non-absorbent or water resistant material cannot alone be effectively used as an inner seal, when packaging merchandise which requires the use of a substantially odorless adhesive or cement to secure same in position upon the neck of a container in order to avoid contamination of the contents of the container from absorption of characteristic odors of the adhesive.

To permit the use of a disc 15 having the characteristics above referred to, it is essential that the inner seal disc be provided with means, adjacent the edge thereof, which will form a suitable anchorage for the type of adhesive necessarily used in securing, cementing or bonding the inner seal disc to the container.

I secure this result, with the form of the invention shown, by providing the under or exposed face of the disc 15 with an annulus 16 of fibrous or other absorbent material such as glassine or other paper, this annulus being bonded to the non-absorbent or water resistant disc 15 by an adhesive suitable for use with the material of said disc which, when this material is chlorinated rubber, consists of a resinous adhesive having a volatile solvent. A stratum of this adhesive is shown at 17.

An essential characteristic of this adhesive is that it, like the material of the disc 15, is water resistant, although it is quite immaterial whether the adhesive is odorless or not. In fact, the adhesive used is not odorless, but nevertheless the contents of the container will not absorb any of the characteristic odors of the adhesive which, when the closure is applied to the container, is fully set and will not be affected by the water content of said material.

The annulus 16 is of a thickness of approximately .002 of an inch, and this annulus has an outside diameter substantially the same as that of the disc 15, and has an inside diameter approximately coincident with that of the inside diameter of the neck of the bottle, jar or other container.

In the accompanying drawing, the adhesive stratum bonding the inner seal disc to the neck of a container by means of the annulus 16 is shown at 18. The adhesive used ordinarily is one containing a water soluble material such as casein which sets by evaporation of the vehicle. This adhesive adheres readily to glass and to glassine or other paper, and even to "Cellophane", which, if desired, may be used in the annulus.

In the production of closures embodying the invention, the shell 11, with its lining gasket 14, is made and assembled in the usual manner, and the inner seal disc may be separately produced and inserted in the shell.

In the production of this inner seal disc, the disc 15 of chlorinated rubber or other similar transparent and water resistant or non-absorbent material is cut from a sheet or strip of such material. The ring 16 is cut from a sheet or strip of material from which it is formed, and either one face of the annulus or the edge of the

disc has a coating of adhesive applied thereto and the two parts combined and pressed together to secure a firm bond therebetween. The inner seal disc is thus formed and placed within the shell and against the lining gasket 14, and is sufficiently stiffened by the annulus to resist displacement after assembly.

When applying the closure to a container, pressure is exerted upon the top 13 of the shell while the skirt of the shell is being secured to the neck of the container, either by turning the shell by means of co-operating screw threads upon the skirt 12 and the neck of the container, or while this skirt is being conformed to the screw threads about the neck of the container.

Before applying the closure to the container, an adhesive or an adhesive solvent is applied to the top surface of the neck of the container, so that when pressure is developed between the annulus 16 and the top of the container, this annulus will be bonded to the container. If the annulus itself be coated with an adhesive, then it is merely necessary to apply a solvent for that adhesive to the neck of the container, but where the annulus is not so coated, then it is necessary to apply an adhesive to the top of the neck of a container, which adhesive has the characteristic of readily anchoring to glass and to the material of the annulus 16. As heretofore stated, a well known casein adhesive may be used for this purpose.

After the application of the closure to a container, there will be a continuing pressure applied to the inner seal disc by the outer shell of the closure or its liner, thus affording ample time for the setting of the adhesive at normal temperatures.

When the closure shell is removed from a container, the inner seal disc 15 will remain in position upon the container, so that access cannot be had to the container without rupturing the material of this disc or destroying the bond between the annulus 16 and the top of the neck of the container.

Since the disc 15 is of transparent material, the contents of the container will be visible through that portion of said disc within the annulus 16.

It is essential that the material of the disc 15 be transparent and water resistant to an extent to prevent absorption of any portion of the water content of the merchandise within the container since such water will cause stretch of absorbent material in the disc, such as "Cellophane", in a manner to form wrinkles in the material of the disc. Such wrinkles make the use of a transparent inner seal disc prohibitive, or if such wrinkles are not found to be objectionable, there is no necessity for the use of a closure of the character herein set forth.

It is not my intention to limit the invention to the dimensions or the specific materials hereir referred to, since other materials having the characteristics set forth may be employed without departing from the spirit and scope of the invention.

Having described the invention, what I claim as new and desire to have protected by Letters Patent, is:

1. A container closure embodying therein an outer skirted shell adapted to be removably attached to the neck of a container, an inner seal disc within, but separable from, said shell, said inner seal disc comprising a disc of water resistant, transparent, flexible material, an annulus

of absorbent material adjacent the edge of said disc and of a width substantially that of the thickness of the neck of the container, whereby said inner seal disc may be secured to the neck of a container by a substantially odorless adhesive which cannot act as a bonding medium between the material of said disc and the top of said container, and a continuous bonding stratum between said disc and said annulus.

2. A container closure embodying therein an outer skirted shell adapted to be removably attached to the neck of a container, a compressible liner or gasket within said shell, an inner seal disc within said shell adjacent, but unconnected with, said liner, said inner seal disc comprising a disc of transparent cellulose acetate, an annulus of fibrous material adjacent the edge of said disc and of a width substantially that of the thickness of the neck of the container, whereby said inner seal disc may be secured to the neck of a container by a substantially odorless adhesive which cannot act as a bonding medium between the material of said disc and the top of said container, and a continuous stratum of a water insoluble adhesive between said disc and said annulus.

3. A container closure embodying therein an outer skirted shell adapted to be removably attached to the neck of a container, a compressible liner or gasket within said shell, an inner seal disc within said shell adjacent, but unconnected with, said liner, said inner seal disc comprising a disc of transparent cellulose acetate, an annulus of fibrous material adjacent the edge of said disc and of a width substantially that of the thickness of the neck of the container, whereby said inner seal disc may be secured to the neck of a container by a substantially odorless adhesive which cannot act as a bonding medium between the material of said disc and the top of said container, and a continuous stratum of a resinous adhesive between said disc and said annulus.

4. A container closure embodying therein an outer skirted shell adapted to be removably attached to the neck of a container, a compressible liner or gasket within said shell, an inner seal disc within said shell adjacent, but unconnected with, said liner, said inner seal disc comprising a disc of water resistant, transparent, flexible material, an annulus of glassine paper adjacent the edge of said disc and of a width substantially that of the thickness of the neck of the container, whereby said inner seal disc may be secured to the neck of a container by a substantially odorless adhesive which cannot act as a bonding medium between the material of said disc and the top of said container, and a continuous bonding stratum between said disc and said annulus.

5. A container closure embodying therein an outer skirted shell adapted to be removably attached to the neck of a container, a compressible liner or gasket within said shell, an inner seal disc within said shell adjacent, but unconnected with, said liner, said inner seal disc comprising a disc of transparent cellulose acetate, an annulus of glassine paper adjacent the edge of said disc and of a width substantially that of the thickness of the neck of the container, whereby said inner seal disc may be secured to the neck of a container by a substantially odorless adhesive which cannot act as a bonding medium between the material of said disc and the top of said container, and a continuous stratum of a water insoluble adhesive between said disc and said annulus.

6. A container closure embodying therein an

outer skirted shell adapted to be removably attached to the neck of a container, a compressible liner or gasket within said shell, an inner seal disc within said shell adjacent, but unconnected with, said liner, said inner seal disc comprising a disc of transparent cellulose acetate, an annulus of glassine paper adjacent the edge of said disc and of a width substantially that of the thickness of the neck of the container, whereby said inner seal disc may be secured to the neck of a container by a substantially odorless adhesive which cannot act as a bonding medium between the material of said disc and the top of said container, and a continuous stratum of a resinous adhesive between said disc and said annulus.

7. A container closure embodying therein an outer skirted shell adapted to be removably attached to the neck of a container, a compressible liner or gasket within said shell, an inner seal disc within said shell adjacent, but unconnected with, said liner, said inner seal disc comprising a disc of transparent chlorinated rubber, an annulus of fibrous material adjacent the edge of said disc and of a width substantially that of the thickness of the neck of the container, whereby said inner seal disc may be secured to the neck of a container by a substantially odorless adhesive which cannot act as a bonding medium between the material of said disc and the top of said container, and a continuous stratum of a water insoluble adhesive between said disc and said annulus.

8. A container closure embodying therein an outer skirted shell adapted to be removably attached to the neck of a container, a compressible liner or gasket within said shell, an inner seal disc within said shell adjacent, but unconnected with, said liner, said inner seal disc comprising a disc of transparent chlorinated rubber, an annulus of fibrous material adjacent the edge of said disc and of a width substantially that of the thickness

of the neck of the container, whereby said inner seal disc may be secured to the neck of a container by a substantially odorless adhesive which cannot act as a bonding medium between the material of said disc and the top of said container, and a continuous stratum of a resinous adhesive between said disc and said annulus.

9. A container closure embodying therein an outer skirted shell adapted to be removably attached to the neck of a container, a compressible liner or gasket within said shell, an inner seal disc within said shell adjacent, but unconnected with, said liner, said inner seal disc comprising a disc of transparent chlorinated rubber, an annulus of glassine paper adjacent the edge of said disc and of a width substantially that of the thickness of the neck of the container, whereby said inner seal disc may be secured to the neck of a container by a substantially odorless adhesive which cannot act as a bonding medium between the material of said disc and the top of said container, and a continuous stratum of a water insoluble adhesive between said disc and said annulus.

10. A container closure embodying therein an outer skirted shell adapted to be removably attached to the neck of a container, a compressible liner or gasket within said shell, an inner seal disc within said shell adjacent, but unconnected with, said liner, said inner seal disc comprising a disc of transparent chlorinated rubber, an annulus of glassine paper adjacent the edge of said disc and of a width substantially that of the thickness of the neck of the container, whereby said inner seal disc may be secured to the neck of a container by a substantially odorless adhesive which cannot act as a bonding medium between the material of said disc and the top of said container, and a continuous stratum of a resinous adhesive between said disc and said annulus.

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