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BOTTLE CAP

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Fig. 1.

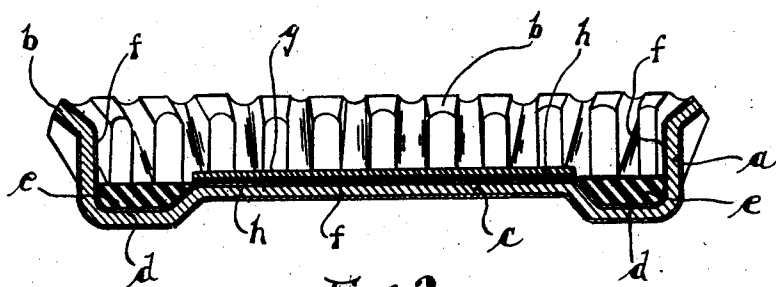
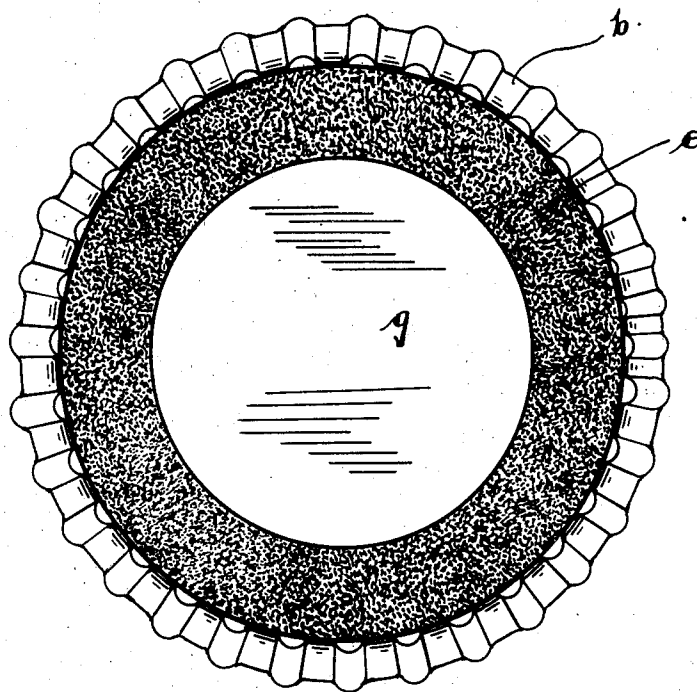


Fig. 2.



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UNITED STATES PATENT OFFICE

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BOTTLE CAP

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1 Claim. (Cl. 215—39)

My invention relates to bottle caps, and more particularly to improvements in bottle caps of the edge gasket type.

I have heretofore produced a bottle cap in which the shell was so formed as to provide a channel in the top of the shell at and adjacent the skirt, which channel is filled with a plastic composition containing latex and a suitable filler such as bentonite. Such caps are capable of use upon various types of jars, the contents of which do not require sterilization and do not act deleteriously upon the exposed central metal face of the cap, or be discolored or impaired in any way as the result of such action.

My present invention has to do with a development in this type of cap by which it is adapted for use upon bottles containing various beverages, particularly carbonated beverages or natural or artificial spring or medicated waters from which gases escape and accumulate in the neck of the bottle adjacent the cap.

With such use of a closure, it is necessary not only to effectively seal the neck of the bottle to make the joint liquid and gas tight, but to so cover the central depressed portion of the shell as to avoid contact therewith of the liquid or gaseous contents of the bottle.

Heretofore it has been an old practice in the art to use what is known as a center applied to the surface of a cushion disk in order to prevent discoloration of the disk, or its disintegration as a result of the action of the contents of the bottle thereon, and also to prevent the development of bacteriological action as a result of the contact of the contents of a bottle with the binding medium used in the production of composition cork.

In the cap of my invention, however, the cushioning material in the form of an edge gasket is confined to a small area adjacent the shell of the cap and in an annular form. Ordinarily the portion of the cap within this edge gasket is not covered by a cushion of any kind, the metal of which the shell is formed being exposed throughout this area. This metal does not have a lacquer coating, ordinarily such being used only when cushion disks are employed protecting the entire inner top of the shell.

The use of such caps with mineral and spring waters, and also certain beverages, is impossible because of the corrosive action of such beverages and the imperfections in the tin plate.

It is equally impossible to protect this surface by a lacquer coating, since such is readily at-

tacked and destroyed by the character of bottle contents above referred to.

The object of my present invention is to provide a cap, the construction or combination of parts of which is such as to permit it to be used with liquids and beverages of the type above referred to. In carrying out this object, I provide a bottle cap having a top provided with a central depressed portion forming an annular groove for the reception and formation of the edge gasket, the height of which gasket is substantially coincident with the plane of the exposed portion of the shell throughout the depressed portion thereof.

Before forming the shell, the entire face of the metal sheet is coated with a lacquer which is baked thereon under a high temperature. The exposed central portion of the metal of the shell is covered by a disk of water repellant, gas impervious, fibrous material or a metal foil of the same diameter as the exposed central metallic portion of the shell within the cap, this covering material being secured in place by means of a thin stratum of an insoluble, fusible, cementitious material, co-extensive in area with said covering disk, located between said disk and the lacquer coating upon the shell, with which lacquer coating the thin stratum of cementitious material co-operates in firmly securing the covering disk in position with its edges in substantial alignment and contact with the inner edge of the edge gasket.

The diameter of the depressed portion of the top of the shell is such as to enter the lip of a bottle so that the edge of the covering disk, with the application of the cap to a bottle, will bear against the neck of the bottle and thus effectively protect, not only the metal of the shell from the contents of the bottle, but the material of the edge gasket as well.

The invention consists primarily in a bottle cap embodying therein a metallic shell having a depressed circular center portion forming an annular channel between same and the skirt of the shell, a facing coating throughout the inner surface of the depressed portion of the shell, an edge gasket within said channel, and a covering disk, co-extensive in area with the surface of said depressed portion, bonded to said facing coating by means of a thin stratum of insoluble, fusible, cementitious material, co-extensive in area with said covering disk and the surface of said depressed portion of said shell; and in such other novel features of construction and combination of parts, as are hereinafter set forth and de-

scribed, and more particularly pointed out in the claim hereto appended.

Referring to the drawing,

Fig. 1 is a horizontal section through a bottle cap embodying the invention; and

Fig. 2 is a bottom plan view of such cap.

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

In the embodiment of the invention shown in the drawing, *a* indicates an ordinary metallic shell of a bottle cap of the crown type, having a fluted skirt *b* of the usual formation. The central portion of the top of the cap is depressed as shown at *c* to form an annular, shallow channel *d* about this central portion, and between it and the skirt *b*. Within the channel *d* is an edge gasket *e* formed of a plastic composition consisting of rubber, preferably in the form of latex, and a filler of plastic material such as bentonite. The thickness of this edge gasket corresponds substantially with the depth of the channel as defined by the surface of the depressed portion *c*.

The inner surface of the shell is provided with a coating *f* of lacquer, which is baked thereon in the usual manner, the lacquer being applied to the sheet from which the shell is formed.

The inner face of the depressed portion *c* is provided with a covering disk *g*, which is firmly cemented to the shell in a position to completely cover the face of the depressed portion, the edge of this disk being in substantial alinement and contact with the inner edge of the annular edge gasket *e* so as to not only protect the face of the portion *c* from the contents of the bottle, but to protect the contents of the bottle from the deleterious action which may arise from such contact.

The covering disk *g*, while preferably of a water repellant, gas impervious, fibrous material such as express paper coated with a suitable varnish having the desired properties, may also be a metal foil. Whether surfaced paper or foil is used, the covering disk will be very thin, the showing of the drawing being grossly exaggerated as to all thickness dimensions.

While the presence of the lacquer stratum would permit the bonding of the covering disk directly to the metal of the shell, this would not afford the desired intimate relation between all parts of the covering disk, particularly at the edge thereof, and the face of the depressed portion *c* to avoid seepage of the contents of the bottle below the covering disk, or through the edge thereof by absorption, and the ultimate contact of such contents with the lacquered surface of said portion *c*.

In order to provide a cap whereby the contents of a bottle are protected from the effects of contact with the lacquer and with the metal of the shell, I provide a bonding stratum *h* between the covering disk and the surface of the portion *c* consisting of a disk of what is known as gutta-percha tissue. This bonding stratum is co-extensive in area with the disk *g*, thus ensuring the presence of a layer of material which is non-absorbent and impervious to gases between the covering disk and the portion *c*. This tissue is very thin, being no more than two-thousandths of an inch in thickness, and may be readily softened at a low temperature.

Gutta-percha is not affected by fruit acids, minerals or other ingredients present in the fluid contents of bottles with which the caps of my invention are designed to be used.

In the production of the caps of my invention, the edge gasket is preferably first applied to the formed and coated shell, and the covering disk *g* subsequently applied in position. The heat necessary for fusing the binding stratum of gutta-percha will aid in setting the composition of the edge gasket, this stratum, at normal temperatures, again hardening.

The resiliency inherent to the stratum is no factor.

Bottles upon which caps of the invention are applied, have a rounded pouring lip, and the varying diameter due to this curvature will permit the depressed central portion *c* to enter the neck of the bottle to an extent to cause the edge of the covering disk to engage the bottle and possibly be compacted slightly so as to form a seal about the covering disk which will exclude the contents of the bottle from the edge thereof. The deformation of the edge gasket by the pressure applied to the cap when placing it upon a bottle will effectively seal the space between the neck of the bottle and the depressed portion *c* adjacent the edge of the covering disk *g*.

The surfacing material upon the covering disk *g* may consist of a mixture of China-wood oil, resin, a drier and a plasticizer. Such a mixture is waterproof, and when applied to one surface of the paper only, affords upon the opposite sides of the paper, a surface effective in securing the desired bonding action to the portion *c* through the medium of the intermediate stratum *h*.

While I have referred to express paper, other well known papers may be used such as sulfite paper or bleached kraft paper, which are well known commercial products.

It is not my intention to claim broadly the use of gutta-percha as a binding medium for applying a paper or foil disk to a bottle cap. I believe it to be new, however, to provide a structure which combines therein a shell with its fluted skirt and its depressed central portion, a rim gasket, and a covering disk of the form and applied in the manner above described.

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

As an article of manufacture, a cap of the crown type comprising a metal shell having a corrugated depending skirt and a top having a central depressed portion forming an internal channel around the same within the shell, a sealing gasket in said channel having its surface substantially flush with the surface of the depressed portion and an overlying covering for the surface of said depressed portion within the cap comprising a disk of paper substantially coextensive with said surface of the depressed portion but peripherally surrounded by the sealing gasket, said disk having a varnished exposed surface, and a layer of gutta percha coextensive with the said disk and adhesively uniting the same to the shell.

ALBIN H. WARTH.