

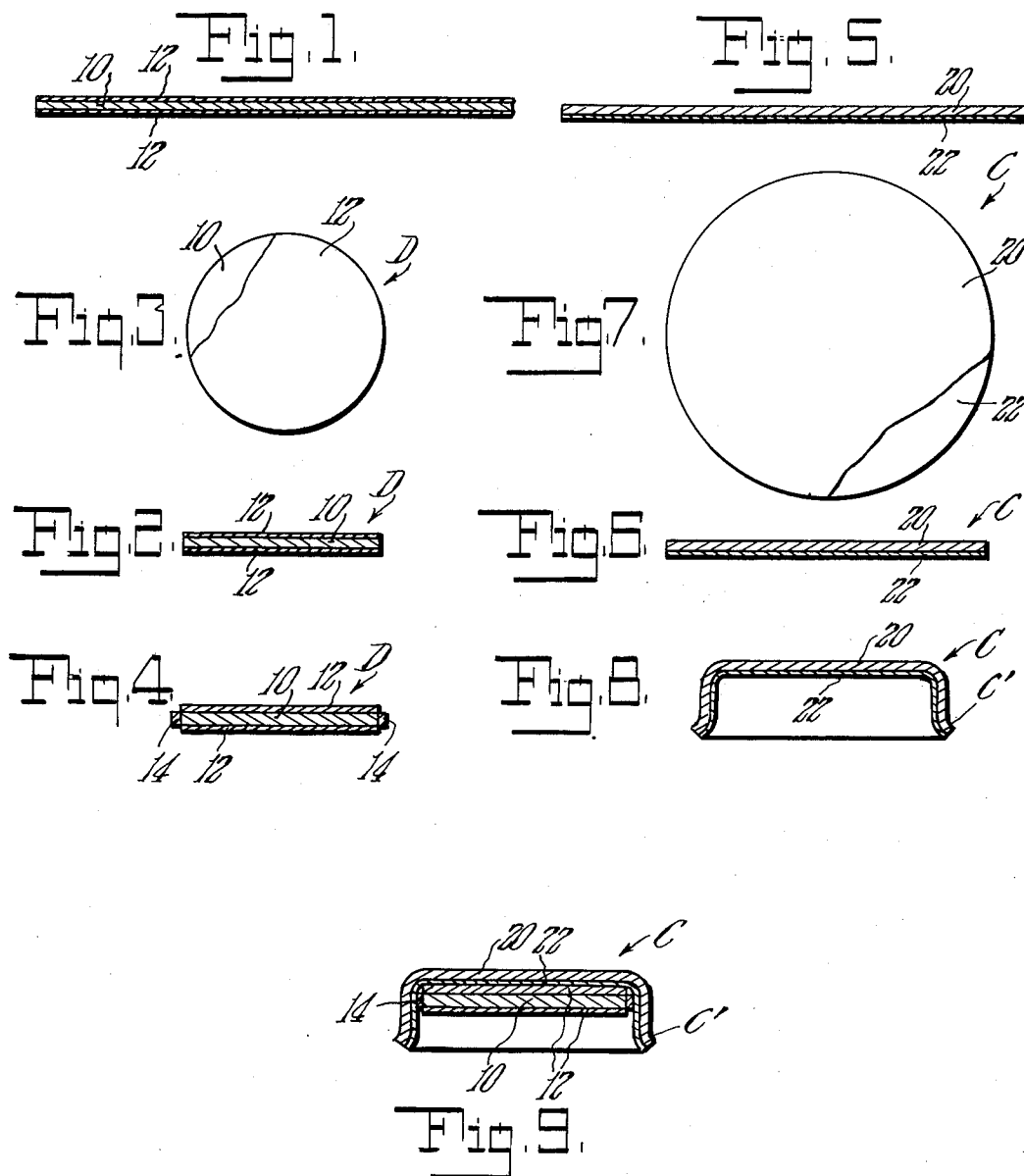
Sept. 20, 1955

J. P. KENNEDY

2,718,323

BOTTLE CLOSURE

Filed Feb. 13, 1953



INVENTOR.
John P. Kennedy.
BY
Russo & Russo
Attys & Agents

1

2,718,323

BOTTLE CLOSURE

John P. Kennedy, Andover, Mass.

Application February 13, 1953, Serial No. 336,770

4 Claims. (Cl. 215—40)

My invention relates to improvements in a bottle closure and a method of producing the same and more particularly to a closure adapted to be used for sealing bottles containing fluids under pressure, such as carbonated beverages. This application is a continuation-in-part of application Ser. No. 139,537, filed by me on January 19, 1950.

A bottle closure embodying the invention is so constructed as to include a disc which is firmly held in position upon a bottle by a closure member.

The principal object of my invention is directed to the provision of a bottle closure which is economical to produce and which is adapted to provide a tight non-leakable seal.

It has been heretofore known to provide sealing liners in the form of a cork disc. Because of the porosity of natural cork, it has been necessary to treat it with a special adhesive bonding material to overcome same and to face the cork disc for further additional protection. Furthermore, cork is not only domestically unavailable but also relatively expensive.

One of the objects of my invention is to provide a liner which has all of the necessary working characteristics of cork and which may be produced from materials which are more readily available and less expensive in their procurement and conversion costs.

According to my invention, a liner is provided from paper board which needs no particular specification of fibre content since combinations of all presently commercially used cooked or ground materials have been found serviceable in the processing stated herein.

In addition, according to my invention, a crown is provided which cooperates effectively with the liner so as to produce the new and novel results.

The paperboard used in the liner requires a maximum bulk and a minimum density for a given weight so as to provide an approximately desired thickness in the range of commercial tolerances and also so as to possess a yieldability and resiliency capable of providing a desired cushion effect. The semi-rigidity or lack of pliability in paperboard of this weight and character is a factor common to the type and makes its use somewhat difficult. Satisfactory and proper means for overcoming these objectionable features is herein provided.

Preferably, paperboard is employed which is made from vegetable fibers such as are presently generally used in standard paper mill practice. Such fibers retain their maximum bulking characteristics so as to obtain a minimum density for a given weight thereby providing a yieldability and relative resiliency, requisites for the desired cushioning effect.

The paper employed preferably will be in weight in the neighborhood of 150 pounds per thousand square feet and in thickness in the neighborhood of .45" to .055". Paper of greater or less thickness or weight, providing it has the desired body, bulk and resiliency, may be as easily employed by minor modifications in the configuration of the crowning device. Preference in the commercial prac-

2

tice tends towards the lighter range of weights so as to insure that the normally used pressures in crown sealing will assist in the accomplishment of the desired results.

The paper may be made in any well known manner on either a Fourdrinier or a cylinder paper machine so as to provide a sheet of maximum bulk and uniform thickness and density. Preference is given to the cylinder paper machine operation which, by its utilization of a plurality of forming cylinders, allows a more even and level distribution of the fibers in the combined plies of the formed web so as to insure the maximum degree of uniformity.

All of the above objects, I accomplish by means of such structure and relative arrangements of parts thereof, as will fully appear by a perusal of the description below and by various specific features which will be hereinafter set forth.

My invention will be hereinafter more particularly pointed out in the claims hereunto annexed and more fully described and referred to in connection with the accompanying drawings wherein:

Fig. 1 is a side elevational view of a paper web used in the production of the discs;

Fig. 2 is a side elevational view of one of the paper discs of my invention immediately following the punching operation and after the facing liners have been applied;

Fig. 3 is a top plan view of the disc shown in Fig. 2;

Fig. 4 is a side elevational view of the disc following the edge facing operation;

Fig. 5 is a side elevational view of a metal strip used in the production of the crowns;

Fig. 6 is a side elevational view of one of the metal discs of my invention immediately following the punching operation in which the crowns are died out from the strip;

Fig. 7 is a top plan view of the crown shown in Fig. 6;

Fig. 8 is a sectional view of a crown following the crimping operation; and

Fig. 9 is a sectional view showing the crown and liner in combination.

In the following description and claims, various details will be identified by specific names for convenience. These names, however, are intended to be as generic in their application as the art will permit.

Referring now to the drawing more in detail, in which similar characters of reference indicate corresponding parts in the several figures and referring more particularly to the preferred form of my invention selected for illustrative purposes, I have shown a paper web 10 which is passed from a reel over rolls to a coating machine. At the machine, the opposite sides or faces are coated with a compound which may be a polymer of styrene, or a copolymer of styrene in which the styrene constitutes at least 50% by weight of the copolymer so as to provide laminations 12 and 12 on opposite sides thereof. The coating material 12 may be one of the group of synthetic resins and plastics which are produced from cracked hydrocarbon gases such as a polymer of styrene or a copolymer of styrene.

The coating 12 is processed to the point of a freedom from objectionable toxic taste and odor residues.

The use of the coating 12 heightens and extends the sealing value in the final product by reason of its flexibility and resilience. In addition, it insures the desired imperviousness to liquids, gases, and the like.

The coating 12 is applied to the flat liner surface by a spraying, dipping or similar generally surface coating accepted process in such a way as to provide a homogeneous and uniform coating of between .001" to .0025" to the outer surfaces of the web so as to cover the same.

The coated web is then carried through a drying chamber or air house where the coatings or facings are dried

fo
li
fo
p
a
st
se
tv
c
p
p
th
s
e
p
a
n
ti
d
s
p
p
c
a
p
s
i
n
n
p
n
t
r

5

having an inner surface coated with a resinous material, a disc of fibrous paperboard material assembled within said shell and having resin coated opposite side faces connected together by a resin coated peripheral edge portion, said coating on the peripheral edge portion 5 consisting of a resin dissimilar to and repellant to said resin coating on the opposite side faces of said disc, said resin coating on one of the opposite side faces of said disc bonding with said resin coating on the inner surface of said shell.

2. In the structure of claim 1, wherein the coating of said shell comprises a water resistant volatile vehicle suspended vinyl resin.

3. In the structure of claim 1, wherein the coating of the peripheral edge portion of said disc comprises an aqueous suspended polyvinyl resin.

4. In the structure of claim 1, wherein the coating of

6

the opposite side faces of said disc comprises a synthetic resin.

References Cited in the file of this patent

UNITED STATES PATENTS

315,324	Painter	Apr. 7, 1885
606,953	Allen	July 5, 1898
625,979	Athens	May 30, 1899
1,899,783	Warth	Feb. 28, 1933
2,238,681	Dorough	Apr. 15, 1941
2,287,063	Raynolds	June 23, 1942
2,343,095	Smith	Feb. 29, 1944
2,412,592	Maier	Dec. 17, 1946
2,434,106	Flood	Jan. 6, 1948
2,476,627	Rote	July 19, 1949