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METHOD OF COATING THE INSIDE SURFACE OF A CONTAINER
WITH PALLADIUM AND ADHESIVE FOR VACUUM-PACKING
OF EDIBLE AND LIKE PRODUCTS
Filed June 15, 1960

FIG. 2

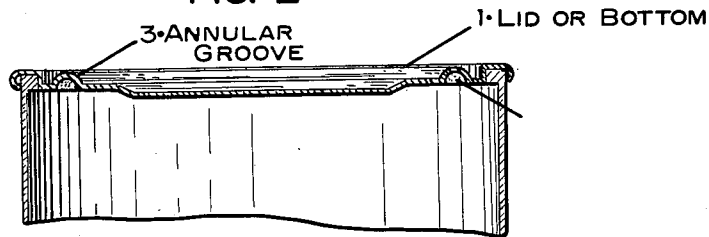
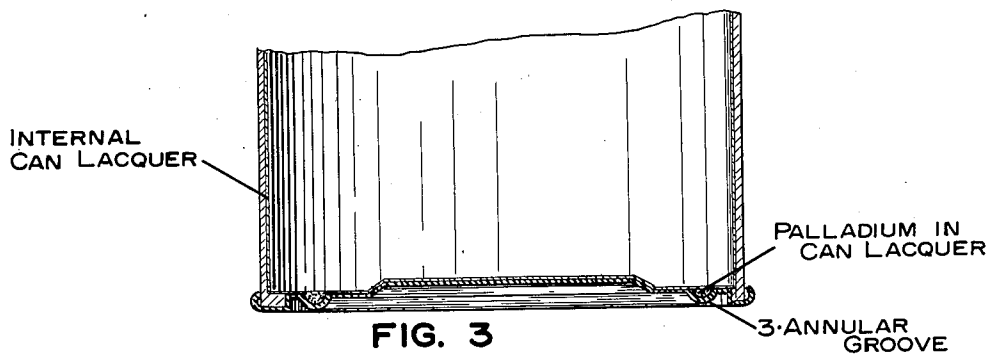
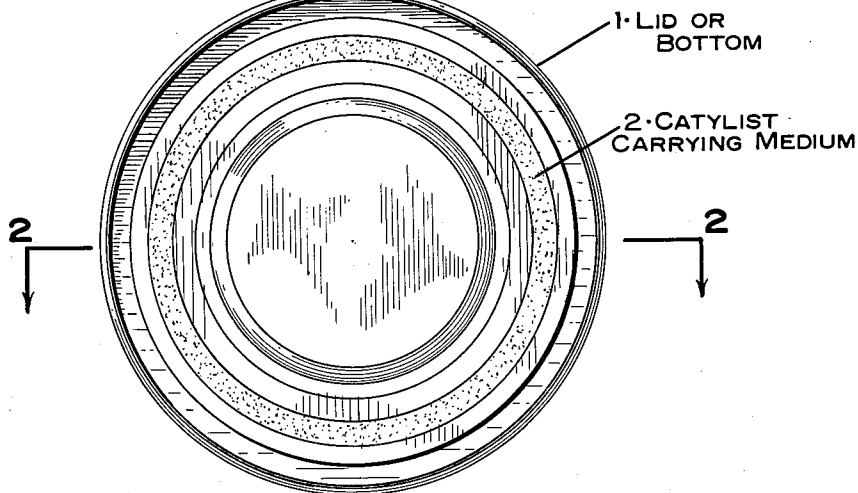


FIG. 1



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METHOD OF COATING THE INSIDE SURFACE OF A CONTAINER WITH PALLADIUM AND ADHESIVE FOR VACUUM-PACKING OF EDIBLE AND LIKE PRODUCTS

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5 Claims. (Cl. 117—8)

This invention relates to improvements in the vacuum-packing of edible and other products in hermetically sealed containers such as cans or tins.

Products such as coffee, nuts and milk powder, which deteriorate when stored in contact with oxygen, are frequently packed into hermetically sealed containers from which most of the air is withdrawn. This may be effected simply by:

(1) Sealing the cans under a vacuum, or

(2) By dissipating this vacuum with an inert gas such as nitrogen or carbon dioxide and drawing a vacuum for a second time before sealing so as to remove a large percentage of the oxygen remaining in the can after the first evacuation.

Cans treated in these ways are said to be "vacuum-packed" and "double vacuum-packed" respectively; if the cans are finally gassed down to atmospheric pressure they are said to be "gas-packed."

When vacuum or gas-packing cans under commercial conditions, it is rarely possible to draw a vacuum of more than 27" of mercury, which still leaves 2% of oxygen in the cans. Gassing and revacuuming of course removes the major portion of the remaining 2% of oxygen, but this double vacuuming is somewhat inconvenient because of the time-consuming nature of the operation.

It is well known that certain catalysts such as palladium are able to effect a combination between oxygen and hydrogen to form water, and this knowledge has been used for many years to bring about oxygen-free conditions in laboratory containers by drawing a vacuum, partially dissipating this vacuum with hydrogen, and allowing the catalyst to bring about a combination of the oxygen remaining in the container when the hydrogen is introduced.

It is also known to attach a small capsule containing a catalyst such as palladium on the inside of the lid of the can. This method of disposing of the residual oxygen is, like the others, time-consuming.

An object of the invention is to provide an improved method of disposing of this residual amount of oxygen in a hermetically sealed container, which overcomes the disadvantages inherent in prior methods.

According to the invention, this improved method consists in applying a catalyst such as palladium in finely divided form to an inside surface or surfaces of a hermetically sealable container by means of a medium in which the catalyst is dispersed so that it is capable of being secured adhesively to such surface or surfaces in a condition to catalyze the chemical combination of the residual oxygen with introduced hydrogen to form water.

It will be understood that the medium used must be

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one which has no deleterious effect on the contents of the container.

One possible medium in which to disperse the finely divided catalyst such as palladium-on-alumina powder, is a plastisol compound which is essentially a paste formed by dispersing a synthetic resin (usually polyvinyl chloride) in a suitable plasticiser. The finely divided catalyst powder must be uniformly and homogeneously incorporated in this medium before application.

Application to a container lid or end is preferably effected by the utilisation of conventional equipment presently available for applying such plastisol compounds to various types of caps, closures, and other components. After heating and deposition of the medium by way of a film or layer, the components are heated in an oven in order to gel or "solidify" such medium. This film or layer may be applied annularly. An outwardly deformed concentric depression or channel may be provided to receive such annular film or layer of the medium.

Alternatively and indeed preferably the catalyst is dispersed in an internal can lacquer such as is commonly used for protectively coating metal sheets in the tinsplate container industry, and may be applied by any of the means commonly used in the industry including brushing. Before application it may be necessary to ensure that the dispersion is uniform, e.g., by periodic stirring of the contents of a container from which the dispersion is supplied.

An advantage of this improved method is that it is possible, by the use of one vacuuming and one gassing operation, to ensure that every trace of oxygen is removed from the interior of the container, such as a can, thereby providing complete protection of the product from the physical and chemical changes which contact with oxygen brings about.

To enable the invention to be more clearly understood and carried into practice, reference is now made to the accompanying drawings in which like references denote like parts throughout both views.

In the drawings:

FIGURE 1 is a plan view of lid or bottom end component of a container of known type made from tinsplate with the catalyst medium applied thereto; and

FIGURE 2 is a sectional view taken on line II—II of FIGURE 1.

Referring to the drawings, reference 1 denotes a lid or bottom end component for a container to which an annular layer 2 of the catalyst carrying medium has been applied by being deposited in an annular groove 3 made by deforming the material in an outward direction. The catalyst carrying medium is preferably applied by means of a nozzle past which the component 1 is arranged to be rotated by apparatus of known construction used in the tinsplate container making industry.

What I claim is:

1. A method of disposing of the residual amount of oxygen in a hermetically sealed container filled with foodstuff comprising homogeneously dispersing palladium in finely divided form in an adhesive liquid having no deleterious effect on the contents of said container and then applying to a predetermined area of the inside surface of said container prior to its being filled with foodstuff a thin film of said adhesive liquid with dispersed palladium therein.

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2. A method according to claim 1 wherein said container has a lid with an outwardly deformed groove and said adhesive liquid with dispersed palladium therein is applied to said outwardly deformed groove.

3. A method according to claim 1 in which said adhesive liquid with dispersed palladium therein is applied to an outwardly deformed groove in the bottom of the container.

4. A method according to claim 1 in which said liquid with dispersed palladium therein is an internal can lacquer.

5. A method according to claim 1 in which said liquid with dispersed palladium therein is a plastisol compound, comprising a paste formed by dispersing a polyvinyl chloride synthetic resin in a suitable plasticiser.

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