May 23, 1939. H. F. WATERS 2,159,835

PACKAGE AND PROCESS FOR MAKING THE SAME

Filed July 18, 1936

Fig. 1.

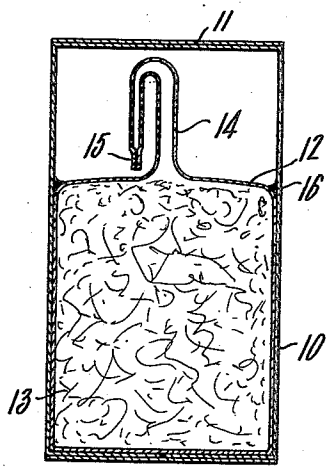


Fig. 2.

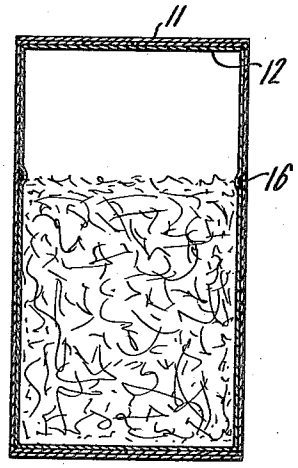


Fig. 3.

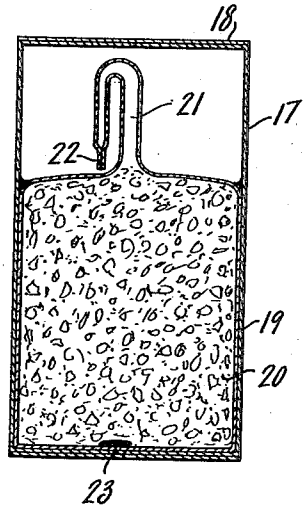
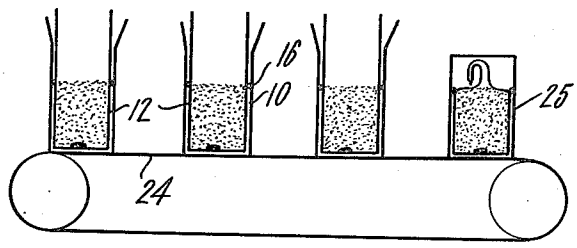


Fig. 4.



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PACKAGE AND PROCESS FOR MAKING THE SAME

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Application July 18, 1936, Serial No. 91,364

5 Claims. (Cl. 99—171)

This invention relates to an improved method for preserving food-stuffs and the like, and more particularly to an improved container and method of packing those commodities which generate or tend to generate gases upon standing.

The invention also contemplates the use of a gas, such as carbon dioxide, which possesses the characteristic of absorbing moisture and prevents the formation of mold on food-stuffs. The gas used should be inert to the particular commodity to be packaged.

One object of this invention is to provide a novel arrangement and method of packaging food-stuffs by the use of carbon dioxide or other suitable gas in combination with an expansible package. Another object of this invention is to provide a method whereby the carbon dioxide gas may readily displace the air in the package without the use of complicated mechanism and expensive processes.

In the grinding or comminuting of coffee after it has been subjected to the conventional roasting treatment there is a marked tendency for the more or less volatile natural aroma, flavor and taste imparting constituents of the coffee to pass off into the air. Moreover, the vegetable or fixed oils in the coffee tend to become rancid when exposed to the air. In order to retain the volatile constituents and to prevent rancidity an improved package construction is provided in which the inner container is made air-tight and expansible. The inner container, being expansible, serves to retain any gases which are generated by the packaged commodity. Accordingly, another object of this invention is to provide a new and improved method of packing ground coffee in which a coffee improving and preserving gas is present.

It is a further object of this invention to make use of the preserving qualities of carbon dioxide gas, and to provide an improved method for the insertion of the carbon dioxide gas into the package.

These and other objects of this invention will become more apparent from a study of the following description taken with reference to the accompanying drawing in which

Fig. 1 is a sectional view of a package showing the relationship between the inner and outer containers prior to the generation of the gas by the enclosed foodstuffs;

Fig. 2 is a view of the manner in which the inner container expands to fill the outer container upon the generation of the gas;

Fig. 3 is a view similar to Fig. 1, but showing the invention as applied, particularly to the packaging of coffee; and

Fig. 4 is a schematic representation of a preferred method of packaging coffee.

Referring now to the modification disclosed in Figs. 1 and 2 there is shown an outer container 10 of conventional structure provided with the usual top closure 11 in which has been inserted an inner container or bag 12 containing the desired foodstuff as, for example, sauerkraut 13. As will be noted, the inner container is not completely filled, thereby providing a neck portion 14 which is sealed as is indicated at 15, leaving a substantial area into which the gas generated by the sauerkraut may expand. For convenience during the packaging step, the inner container or bag is secured to the outer container by a line of adhesive 16 extending preferably around the inner surfaces of the wall of the outer container and being located about two-thirds the way from the bottom thereof. As is well known in the packaging art, materials such as sauerkraut, coffee and the like, generate gases upon standing. Moreover, these gases are, as in the case of coffee, aromatic and invariably contain desirable food flavors which, if lost, will render the food-stuffs flat, and, as in the case of coffee, exposure to the air would render the coffee rancid due to the fact that coffee contains a certain vegetable or fixed oil which has a tendency to become rancid when exposed to the oxygen of the atmosphere.

In Fig. 2 there is shown, in order that the invention may be clearly understood, the package of Fig. 1 after the gas has been generated. Since, during the original packaging of the foodstuffs a considerable area of the inner container was not used, the gas may expand into the said area, thereby forcing the wall portions of the inner carton against the inner wall surfaces of the outer carton. In this way all of the original gases generated by the packaged foodstuffs are retained and the quality and palatability of the foodstuffs are maintained intact. By providing an area into which the gases can expand there will be no pressure created against the walls of the inner container or bag so that the said inner container or bag will remain air-tight at all times.

Referring now to Figs. 3 and 4 in which there is disclosed a modification of the invention, there is illustrated an outer container 17 provided with the usual cover 18 in which is enclosed an inner container 19 containing coffee 20. As will be noted from an inspection of Fig. 3 the upper portion of the inner carton is not filled so that a substantial area 21 is left empty. The end of the container is sealed as at 22. According to the invention a small pellicle or pellet of carbon dioxide solid gas 23 is placed in the bottom of the inner container. In the formation of the package the carton may be placed on a traveling belt 24, the pellicular carbon dioxide having first been inserted in the bottom of the inner container 19. As the belt moves along additional

cartons may be placed on the belt, but it will be noted that as each carton is moved along the pellicle of carbon dioxide will gradually sublime, giving off carbon dioxide gas which displaces the air normally present in the coffee and carton. This phenomenon is due to the fact that carbon dioxide gas is heavier than air and therefore displaces the air in the package so that by the time the carton has reached its closing position, as illustrated at 25, the pellet of carbon dioxide has become very small and in some instances will have disappeared entirely. However, it is preferable that a very small amount of carbon dioxide in pellet form remain in the package when the same is closed. As has been stated in connection with the modification disclosed in Figs. 1 and 2, by the provision of an area into which the gases can expand there will be no pressure created against the walls of the inner container or bag so that the said inner container or bag will remain air-tight at all times.

Closing of the inner carton may be done in any conventional manner, but it is preferable that some gas or liquid proof material be used in forming the inner carton. Broadly speaking, a stock comprising a sheet of pliofilm or the like laminated to a sheet of paper may be used or a suitable grade of paper may be provided with a coating of liquidproof, thermoplastic material.

If the material used for forming the liquidproof surface for the liquid container be of a thermoplastic character, the inner container may be sealed by the application of heat and pressure or by the application of heat alone.

Reference is now made to the completed package and it will be noted that the package comprises essentially an outer carton, an inner container which has been partly filled with coffee. The air in the inner container has been completely removed by the carbon dioxide gas so that there remains in the interior of the inner container coffee surrounded by atmosphere of carbon dioxide gas. As is well known, coffee has very definite and individual characteristics which are not possessed by any other food commodity. It must be roasted before use and since this roasting accelerates the volatilization of the natural oils of the gas contained therein, it is imperative that coffee be used as soon after roasting as possible unless some means are devised to prevent the rapid deterioration of the coffee. The carbon dioxide atmosphere in which the coffee is packaged retains the aromatic and volatile oils which would normally evaporate from the coffee and prevents the oxygen of air from turning rancid the vegetable or fixed oil in the coffee.

The package as above described represents a considerable saving both in the actual packaging processes and in the cost of materials from which the component parts of the package is formed. The outer carton may be formed of a suitable paper preferably of the type known in the art as "kraft" board and the inner container may be formed of any standard grade of paper coated with a gas and liquid tight material. If desired, a laminated stock may be used.

It will be appreciated by those skilled in the art that many changes in construction may be made without departing from the spirit or scope of the invention. The invention is therefore to be limited only by the scope of the appended claims which are to be broadly construed.

What is claimed as new is:

1. In a process for the packaging of foodstuffs comprising, in combination, the steps of inserting a pellet of a gas forming material in a gas-tight flexible container enclosed in an outer container made of relatively rigid material and capable of supporting the walls of the inner container upon expansion thereof due to the formation of gases within the inner container, filling said container with the desired food-stuff, displacing the air in said container with the gas formed by the vaporization of said pellet, and sealing said container after the air therein has been replaced by the gas and prior to the complete vaporization of said pellet, said inner container being sealed in such a manner that the latter may be expanded upon the formation of gases within the inner container.

2. In a process for the packaging of foodstuffs comprising, in combination, the steps of inserting a pellet of a gas forming material in a gas-tight flexible container enclosed in an outer container made of relatively rigid material and capable of supporting the walls of the inner container upon expansion thereof due to the formation of gases within the inner container, partially filling said container with the desired food-stuff, displacing the air in said container with the gas formed by the vaporization of said pellet, and sealing said container after the air therein has been replaced by the gas and prior to the complete vaporization of said pellet, said inner container being sealed in such a manner that the latter may be expanded upon the formation of gases within the inner container.

3. In a process for the packaging of foodstuffs comprising, in combination, the steps of inserting a pellet of a gas forming material in a gas-tight container, partially filling said container with the desired food-stuff, retaining said container opened until the air therein has been replaced by the gas formed by said pellet and thereafter sealing said container in such a manner as to leave a space between the food-stuff and the sealed portion of said container.

4. In a package of the class described, comprising, in combination, an outer container, an inner gas-tight container, a food-stuff disposed therein of the type which give off gases on standing, a closure for said inner container located a substantial distance from the commodity disposed therein leaving a space for the collection of the gases given off by said commodity whereby to prevent leakage of said inner container by the pressure created by said gases, said outer container supporting the walls of the inner container upon expansion of the latter due to pressure of the evolved gases.

5. In a package of the class described, comprising, in combination, an outer container, an inner flexible gas-tight container, a food-stuff disposed therein of the type which gives off gases on standing, a closure for said inner container located a substantial distance from the commodity disposed therein leaving a space for the collection of the gases given off by said commodity whereby to prevent leakage of said inner container by the pressure created by said gases, said outer container supporting the walls of the inner container upon expansion of the latter due to pressure of the evolved gases.

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