VACUUM PACKAGING OF FOOD PRODUCTS

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This invention relates to improvements in flexible bag-type containers, and more particularly to flexible containers for the packaging of perishable products hermetically and/or sanitarially sealed therein.

The primary object of the invention is the provision of a flexible bag-type container of the character wherein its body is constructed with a plurality of compartments, the arrangement of which enables perishable food products, or commodities of like or unlike species, to be separated from each other when packaged therein, thus allowing the use of said substances, or articles, in one compartment without disturbing said substances, or articles, remaining within the other compartment, or compartments, of the flexible bag-type container.

Another object of the invention is to provide an improved container formed of flexible sheet material, said container having a plurality of compartments disposed in adjacent side by side relation, each of said compartments comprising inner and outer walls integral with each at its peripheral edge portions, the material of the outer side walls of said container being formed of flexible non-thermoplastic sheet material having an inner film of thermoplastic material secured thereto, the material of the dividing wall between each compartment being formed of flexible thermoplastic air and moisture-proof sheet material.

Another object of the invention is the provision of a flexible container of said character having a plurality of compartments for the packaging of thinly sliced bacon which is extremely difficult to handle, or package attractively, and more particularly to a vacuum-packed bacon package, whereby the bacon packaged in one compartment can be dispensed without disturbing the bacon, or said vacuum, in any of the other compartments provided in said container.

Another object of the invention is the provision of a container of the above character whose walls are formed of thin, flexible material such as "cellophane" combined with polyethylene, or "Phoilfilm," or the like, having a plurality of compartments receptive to commodities including articles, comminuted crude material, or any substance having fluidity, the quantities of the same being completely separate and individually usable without affecting others contained in all, or any, of the other compartments, the compartments being closed independently of each other so that the opening of one will not affect the opening of the other.

A still further object of the invention is the provision of a container of the above character whose walls are formed of thin, flexible, material and having a plurality of compartments which are particularly suited to a single-dosage, single-use, quick-opening type unit compartment, the desired compartment to be opened without disturbing the other compartments, whereby the contents may be dispensed from a compartment with great ease and rapidity, this type container being especially adaptable for use with vacuum-packed liquids, jellies, creams, pastes, semi-fluids, semi-solids, solids in tablet or subdivided form, powders, suspensions, emulsions, etc.

A still further object of this invention is the provision of a flexible, two-compartment bag having a transparent portion, the outer walls of said bag being formed of non-plastic "cellophane" and having inner walls of plastic polyethylene secured thereto, each compartment hermetically sealed from the other which would permit each compartment to embody a suitable product vacuum and/or gas-packaged therein, either compartment to be opened while retaining functional integrity of the other compartment to a limited degree.

A still further object of this invention is the provision of a flexible, two-compartment evacuated bag having the external walls made of non-thermoplastic material such as "cellophane" and having an inner film of thermoplastic polyethylene arranged as the center wall panel, thereby forming said two-compartment structure; said compartments being sealed to render each airtight while the same are in evacuated condition and/or filled with inert gas, said single center polyethylene wall panel permitting retention of vacuum in the unopened half for a limited period of time after one compartment is opened.

A still further object of this invention is the provision of a flexible, evacuated two-compartment bag having its external walls made of non-thermoplastic material such as "cellophane" and having an inner film of thermoplastic polyethylene and a center wall panel made from "cellophone" having a film of polyethylene attached to both sides thereof, whereby the heat-sealing properties of the material would be maintained and the full functional compartment integrity would be maintained after one compartment is opened to the atmosphere.

A still further object of this invention is the provision of a flexible container of this character having a plurality of compartments whose walls are formed of polyethylene-coated "cellophone," said container being easy and economical to produce, simple in construction, thoroughly reliable and effective for the purposes intended thereof, being strong, durable, convenient for use by distributors of hermetically sealed commodities and to the consumers of same, assuring freshness to the packaged materials, eliminating deterioration of the commodities when packaged.

A still further object of this invention is the provision of a container formed of flexible sheet material having a plurality of article compartments, the walls being formed by an extrusion-coated process depositing a film of polyethylene upon "cellophone," thus eliminating the use of any laminating agent, thereby giving exceptional clarity. Said polyethylene thus combined with "cellophone" has the rigidity necessary for efficient machinability which unsupported polyethylene film lacks. Said "cellophone" can be pre-printed for greater permanence on one side to be coated prior to coating, and said "cellophone" further acts as a barrier to prevent sticking to the jaws of the heating bars, and the polyethylene surface, of course, provides excellent heat-seals.

It is a further object of this invention to provide an improved method of making flexible bags having a plurality of compartments as aforesaid.

With these and other objects in view, the invention consists in the features of construction, combination and arrangement of parts as will be hereinafter more fully described in detail, illustrated in the accompanying drawings, which disclose the preferred and modified forms of embodiment of the invention, and pointed out in the claims hereunto appended.

In the accompanying drawings:

Figure 1 is a side view of a flexible bag-type container provided with a partition;
Figure 2 is a sectional view of the container shown in Figure 1, with the top portion open ready for filling; Figure 3 is a sectional view taken on the line 3—3 of Figure 1; Figure 4 is a sectional view similar to Figure 3, of a modified type of container; Figure 5 is an enlarged view of the lower portion of Figure 3, showing the sealing thereof in accordance with the invention; Figure 6 is an enlarged view of the lower portion of Figure 4, showing the sealing thereof in accordance with the invention incorporating the modified type container; Figure 7 is an enlarged view of the container shown by Figures 1 and 3, with one compartment still filled with a Connecticut, while the contents of the second compartment have been removed by rupturing the side wall thereof; Figure 8 is a cross-sectional view of a container similar to the one shown by Figures 1 and 3, showing bacon arranged in shingled relation within the compartments of the container and vacuum and/or gas-packaged therein; Figure 9 is an enlarged view of the lower portion of Figure 8, showing the sealing thereof in accordance with the primary object of the invention.

Similar references characters indicate corresponding parts throughout the several views in the drawings. Referring to the drawings in detail, particularly Figures 1, 2, 3 and 5, "A" designates generally a container constructed in accordance with the invention, comprising a flexible body 10, preferably made from a sheet of "cellophone" 11, or any other material giving maximum life thereto, having polyethylene 12 extruded to the inner surface thereof. This body has side walls 13 and 14 with side seams 15 and 16, a bottom portion 17 with closed seam 18 and a closable top portion 19. After the container is filled, said portion 19 is closed, and, when sealed, forms a top seam 20. Said body seams 15, 16, 18 and 20 are united and preferably formed by heat and pressure.

Built interiorly of the body 10 is a partition, or dividing wall 22 for separating the interior of the body into a determined number of compartments 24 and 25 for separating contents of these respective compartments from each other in the packaging thereof within the container; said compartments may be of equal or unequal capacity with respect to each other. It is desirable to form said dividing wall 22 of a heat-sealing material, such as polyethylene or "Pliofilm," or a flexible plastic, such as "cellophane," coated on both sides with said heat-sealing material.

Figures 4 and 6 show a container somewhat different in construction which may be used for the same purpose. Here, the center partition is formed of "cellophone" 30 having films 31 and 32 of polyethylene extruded upon both sides thereof; the side walls being one strip and folded upon itself forming bottom seam.

Figure 7 shows the same container "A" as shown in Figures 1 and 3, with its side wall 14 ruptured and contents of compartment 25 removed therefrom. The compartment 24 is shown filled with suitable and desirable contents 33, showing how the contents in compartment 25 may be removed without disturbing the contents of the other compartment 24, or other compartments where the container "A" is provided with a multiple number of compartments.

Figures 8 and 9 show the structural components of a container "B" similar in construction to container "A," having bacon slices 35 arranged therein so that they will be visible for inspection through the side walls 36 and 37 formed of sheet "cellophane" 11 having an inner coating of polyethylene 12 secured thereto; said container "B" having a partition 22 formed of plastic, heat-sealable material polyethylene 22, thereby providing a container with two individual compartments 40 and 41. The bacon slices are arranged in the shingle formation illustrated and introduced into each one of the compartments 40 and 41. After the bacon slices have been placed within both of the compartments of container "B" with closed lower end portion 44 and bottom seam 45, the open top end of the container is connected with a suitable source of vacuum to extract the air from within. The upper ends of the side walls 46 and 47, along with the upper end 48, of partition 43 are heat-sealed together to form a top seam 49 and two separate vacuum-sealed bacon compartments within one container. The subject position of the container to vacuum results in the walls of the container forming a sharp stepped arrangement about the edge of the bacon slices and against the bacon slice edges, the vacuum and flexible walls giving a ribbing effect, producing a substantially transparent container with a plurality of compartments. When it is desired to open the package to use the bacon therein, one side wall may be ruptured and torn away, and the desired slices withdrawn from one of the compartments of the container without affecting the degree of vacuum in the adjacent compartment separated by partition 43.

It will be understood that the described container may be formed in any desired manner. In the specific illustration given in Figure 2, the front of the container, the partition of the container and the back of the container are left substantially adjacent to each other, whereby the side and bottom seams may be formed by heat and pressure, leaving the top portion of the container open.

The method of forming containers, as above described, can be easily and economically accomplished by having rolls of stock arranged whereby the material forming the partition of the container may be fed between two layers of container wall material, thereafter having heat and pressure applied thereto along one marginal edge thereof forming the partition. A method of future individual containers, said individual containers being formed by sealing said layers of material inwardly along said marginal edges and later separating the continuously formed containers by cutting inwardly of said edges upon sealed areas.

It will thus be seen that the objects hereinbefore set forth may readily and efficiently be obtained and since certain changes in carrying out the above process, and certain modifications in the article which embody the invention may be made without departing from its scope, it is intended that all matter contained in the above description or shown in the accompanying drawings should be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein described, and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

Having described my invention, what I claim as new and desirable to secure by Letters Patent is:

1. The method of forming a vacuum package of perishable food products which comprises, adhering a polyethylene coating to a cellophane film, making two exterior walls of said coated film with a poly-ethylene coating on the interior walls thereof, arranging a sheet of polyethylene film between said exterior walls and coextensive with each, sealing the lower and side edges with heat and pressure to form a two-compartment container, placing like perishable food products in said compartments, evacuating said compartments, and sealing the previously unsealed top edges with heat and pressure while preventing reentrance of atmospheric air, thereby forming two sealed compartments.

2. The method of forming a vacuum package of perishable food products which comprises, adhering a polyethylene coating to a cellophane film making two exterior walls of said coated film with a poly-ethylene coating on the interior walls thereof, arranging a sheet of cellophane having polyethylene coating on each side thereof between said exterior walls and coextensive with each, sealing the
lower and side edges with heat and pressure to form a two-compartment container, placing like perishable food products in said compartments, evacuating said compartments, and sealing the previously unsealed top edges with heat and pressure while preventing reentrance of atmospheric air, thereby forming two sealed compartments.

3. The method of forming a vacuum package containing thinly sliced bacon, which comprises, adhering a polyethylene coating to a cellophane film making two exterior walls of said coated film with a polyethylene coating on the interior walls thereof, arranging a sheet of polyethylene film between said exterior walls and coextensive with each, sealing the lower and side edges with heat and pressure to form a two-compartment container, placing thinly sliced bacon in said compartments, evacuating said compartments, and sealing the previously unsealed top edges with heat and pressure while preventing reentrance of atmospheric air, thereby forming two sealed compartments.

4. The method of forming a vacuum package containing thinly sliced bacon, which comprises, adhering a polyethylene coating to a cellophane film making two exterior walls of said coated film with a polyethylene coating on the interior walls thereof, arranging a sheet of cellophane having polyethylene coating on each side thereof between said exterior walls and coextensive with each, sealing the lower and side edges with heat and pressure to form a two-compartment container, placing thinly sliced bacon in said compartments, evacuating said compartments, and sealing the previously unsealed top edges with heat and pressure while preventing reentrance of atmospheric air, thereby forming two sealed compartments.

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