

Dec. 13, 1966

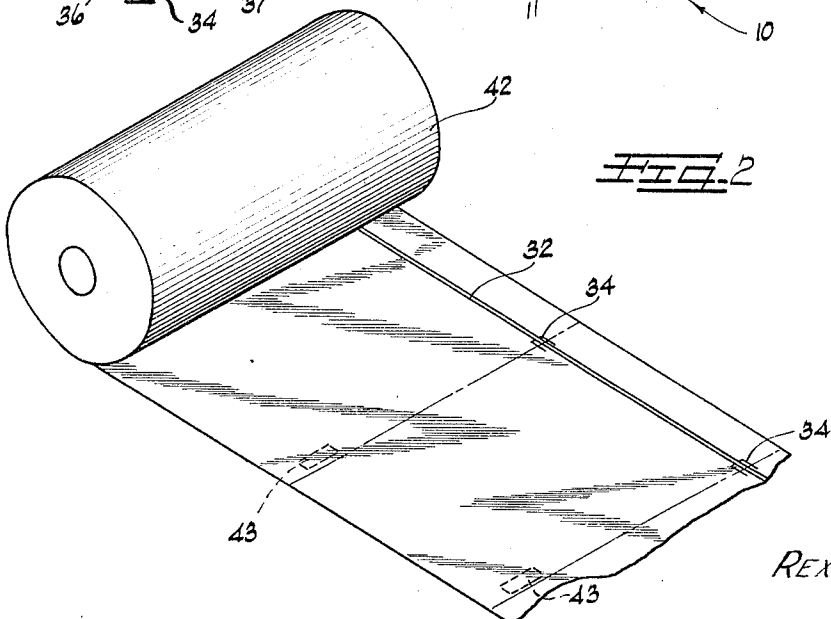
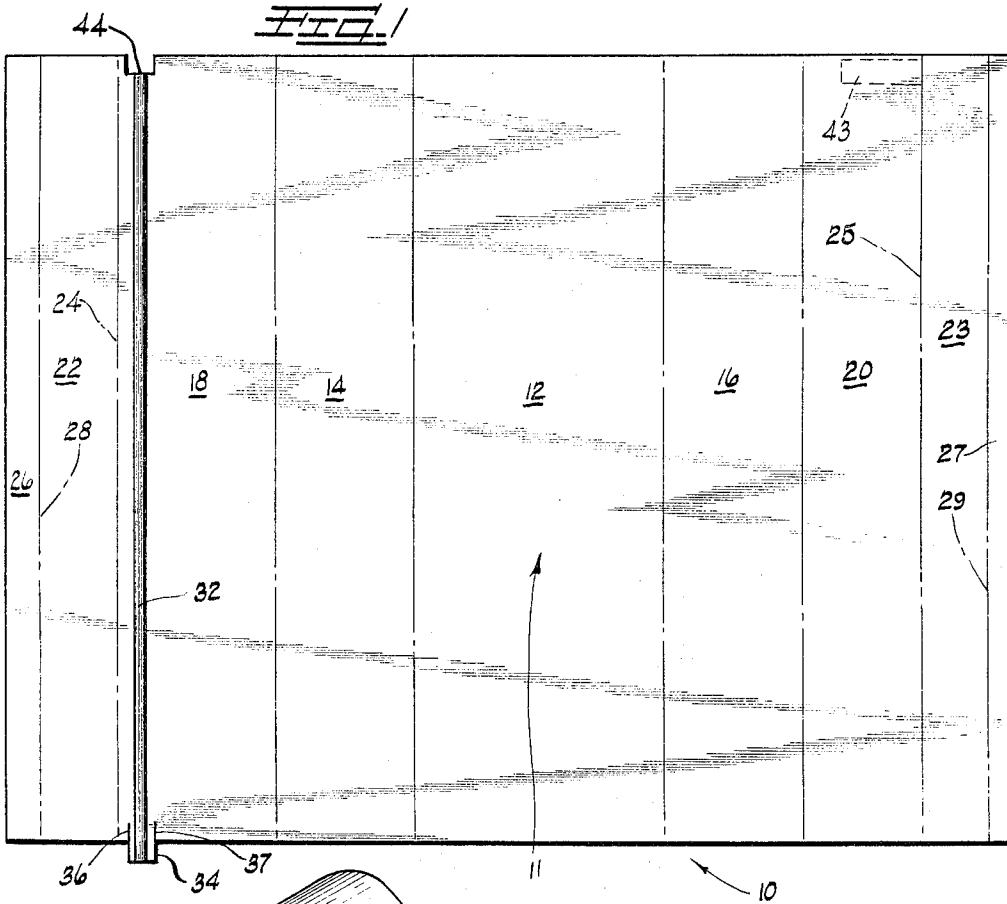
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3,291,377

PACKAGING

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2 Sheets-Sheet 1



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FIG. 3

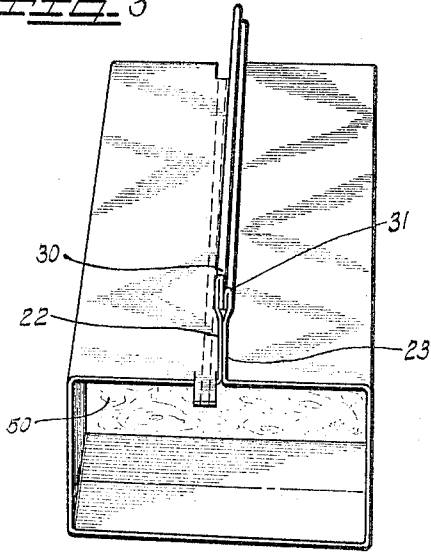


FIG. 4

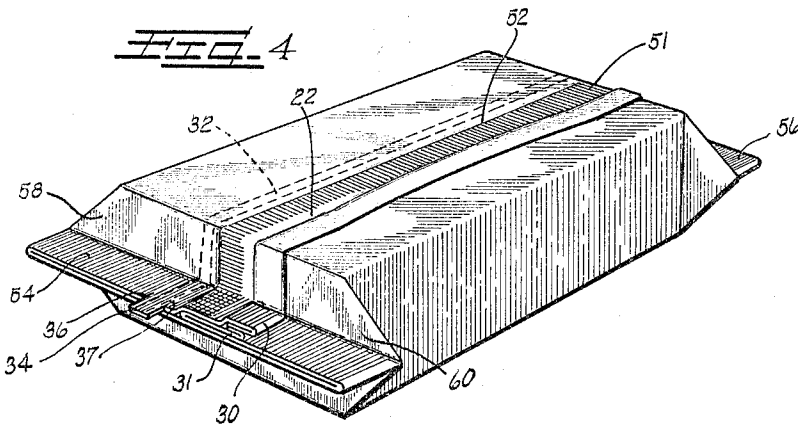
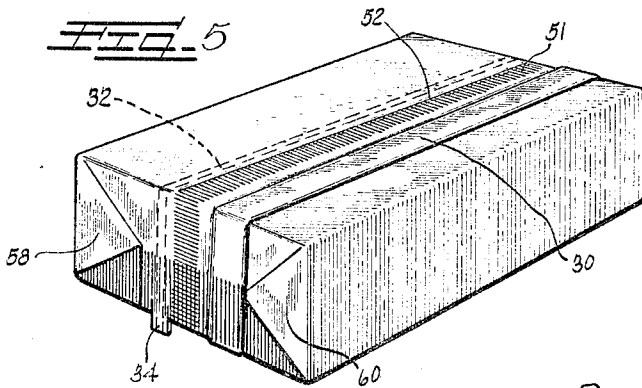


FIG. 5



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3,291,377  
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9 Claims. (Cl. 229-37)

This application is a continuation-in-part of Serial No. 261,640, filed February 28, 1963, now Patent No. 3,233,815.

The present invention relates to packaging, and more particularly is directed to an improved package for perishable comestibles fabricated of relatively high strength material which is substantially moisture and gas impervious and which is provided with convenient opening means for affording access to its contents.

Generally, a wrapper which is suitable for packaging perishable comestibles, such as cream cheese, must be fabricated of a material which is substantially gas and moisture impervious, in order to maintain the article at a desired level of freshness. However, a wrapper having these desired properties generally has certain disadvantages which may be severe limitations on its practical usefulness. A principal deficiency of such a wrapper arises from the fact that materials selected to provide optimum gas and moisture resistant properties have a relatively high strength, so that it may be difficult to open the package initially to obtain access to the contents. The difficulty in opening the package may arise from the strength of the wrapper material and its resistance to tearing, or may arise from the strength of the bonds used to seal the wrapper into a gas-tight package.

Another problem often encountered in wrappers for comestibles, for example, cream cheese, is that the entire package of cream cheese may be used at one time, or only a portion of the cream cheese may be used, in which case it is desirable that the package be capable of being reclosed and resealed. Generally, it is not convenient to remove the entire contents of a cream cheese package through a reclosable and resealable opening, and if the package is designed to permit easy removal of the entire contents of the package, it is difficult to reclose the package and preserve the freshness of the cream cheese if less than the entire contents of the package are consumed.

It is an object of the present invention to provide an improved conveniently openable package for enclosing a perishable comestible. It is another object to provide an improved package which may be conveniently sealed about a perishable article, such as cream cheese, and which may be conveniently and precisely opened to permit access to its contents. It is a further object to provide an improved highly durable wrapper construction which may be conveniently sealed into position about a block of cream cheese and readily and precisely opened with the breaking of only limited areas of the wrapper seals. Still another object of the invention is to provide an improved package for comestibles in which alternate opening means are provided for opening the package.

Other objects and advantages will become readily apparent from the following detailed description and accompanying drawings wherein:

FIGURE 1 is a plan view of a preferred embodiment of a blank for a wrapper in accordance with the present invention;

FIGURE 2 is a perspective view of a roll of wrappers of the type illustrated in FIGURE 1;

FIGURE 3 is a perspective view of the blank illustrated in FIGURE 1 folded about a block of material during an initial stage of the packaging procedure;

FIGURE 4 is a perspective view of the wrapper of FIGURE 3 in an advanced stage of the packaging pro-

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cedure particularly illustrating certain of the seals provided;

FIGURE 5 is a perspective view of the completed wrapper sealed about the desired article.

A wrapper fabricated in accordance with the principles of the present invention is particularly adaptable for use in packaging perishable materials, such as cream cheese, which deteriorate if exposed to air. However, the wrapper, as described herein, may also be readily employed for packaging other articles which are not normally subject to deterioration.

The wrapper may be formed from any material or lamination which provides the desired strength and protection to the wrapped article. Generally, the wrapper is formed from a particular combination of materials bonded together to form a laminate having extremely high mechanical strength as well as being substantially impervious to gas and moisture. The laminate includes an intermediate layer which serves to provide most of the mechanical strength of the laminate and which preferably also serves as a moisture and gas barrier. The intermediate layer may be any flexible, tear resistant, gas and moisture impervious synthetic film. A preferable film is polyethylene terephthalate resin, and 50 gauge has achieved good results. Such material is manufactured by the E. I. du Pont de Nemours Company under the trade name "Mylar." Other materials which may be employed include cellophane, polypropylene, and polyethylene.

The inner layer of the laminate which contacts the comestible comprises a pressure sealable and resealable wax-like coating composition, which does not readily adhere to relatively tacky comestibles such as cream cheese, which retains low gas and moisture transmission properties even after being creased, and which is resealable to itself under moderate pressure. Such a material may be a mixture of ethylene vinyl acetate and paraffin wax, which is bonded to the Mylar, and adds increased toughness to the laminate. A particularly suitable material for this use is that manufactured by the E. I. du Pont de Nemours Company and sold under the trade name "Elvax." This material is thermoplastic so that the requisite seals may be formed in fabricating the package, but under the temperatures contemplated for manufacturing and storing the articles being wrapped, it does not adhere to the wrapped articles. However, the Elvax coating sticks to itself upon application of moderate pressure and thus provides a resealable package in accordance with the present invention. The Elvax coating may be deposited on the Mylar film in the form of a relatively thin coating of between about 15 and about 35 pounds per ream, preferably 25 pounds per ream.

Other coatings such as mixtures of wax and rubber may be used instead of Elvax. For example, such a coating may be the mixture of rubber, paraffin wax and micro-crystalline wax set forth in United States Patent No. 2,339,242 to Abrams et al. Alternately, wax coating compositions including a coating material of micro-crystalline wax, aluminum distearate, and an ester gum such as are described in United States Patent No. 2,348,689 to Abrams et al., or micro-crystalline wax and paraffin wax coating materials substantially as set forth in United States Patent No. 2,753,275 to Wiles et al. can be utilized. Another highly advantageous wax coating material is marketed by the Marathon Corporation under the registered United States trademark "Parakote." Parakote-624 is a mixture of 18 percent by weight of pale crepe rubber, 8 percent by weight of an ester gum, 44 percent by weight of a micro-crystalline wax, and 30 percent by weight of a paraffin wax.

The outer layer of the laminate may be a metal foil, such as aluminum foil or the like, of between about 0.0002 and about 0.0006, preferably 0.0004 inch in thick-

ness to provide desired strength and dead fold characteristics. The aluminum foil is bonded to the intermediate layer by a thin film of an appropriate thermoplastic bonding material such as polyethylene plastic. The aluminum foil is selected so as to have sufficient strength and durability to provide increased dimensional stability to the finished package as well as to provide an attractive exterior appearance. If desired the exterior surface of the foil may be coated with a suitable ink-receptive material such as vinyl plastic or lacquer so that the finished package may be printed with advertising labels or other such material.

While materials other than those described above may be readily used in forming the laminate employed in the present package, it has been found particularly advantageous to use those described. In some instances it may be possible to eliminate the foil layer from the lamination, particularly where the plastic film has sufficient strength and folding characteristics for the intended use.

A package constructed in accordance with the principles of the present invention has many unique features, one of which is its extremely high mechanical strength and gas and moisture imperviousness. In achieving these desired features, the completed package which is formed is necessarily relatively difficult to open, since the laminate utilized is virtually impossible to tear manually. However, by employing the construction which will be described in detail hereinafter, the laminate may be readily opened in a precise and accurate manner, thereby providing a highly useful package. Further, the package may be opened in either of two ways, depending upon whether or not it is desired to reclose the package after removal of a portion of its contents.

Now referring to the drawings in detail, FIGURE 1 shows a rectangular blank 10 from which the package is formed. The blank 10 is in the form of a generally rectangular sheet of the laminate previously described, and is particularly adapted for packaging rectangular-shaped articles having a greater length than girth, although it would be possible to wrap square or other rectangular shapes.

The blank 10 includes a central body portion 11 which includes a centrally located panel 12, which ultimately defines the top or upwardly facing surface of the completed package, and may carry suitable imprinted advertising material. The body portion 11 also includes a pair of relatively narrow side panels 14 and 16 on opposed longitudinal sides of the central panel 12, which define the sides of the completed package, and a pair of bottom panels 18 and 20, bounding the side panels 14 and 16 which together define the ultimate bottom or downwardly facing surface of the completed package.

As shown in FIGURE 1, the central body portion 11 is bounded by coextensive wings 22 and 23 which are connected to the panels 18 and 20 along fold lines 24 and 25. As seen in FIGURE 3 the wings 22 and 23 are adapted to abut one another in face-to-face relationship when the wrapper is wrapped around an article. The wing 22 has a greater width than the wing 23 so that when the wings are folded along lines 24 and 25 and abutted against one another, the marginal edges of the wings 22 and 23 are spaced apart.

Referring again to FIGURE 1, flaps 26 and 27 are attached to the extremities of the wings 22 and 23 respectively along fold lines 28 and 29. The flap attached to the wide wing 22 is preferably wider than the flap 27 attached to the narrow wing 23. The flaps 26 and 27 are adapted to be folded interiorly of the wrapper 10 along the fold lines 28 and 29 and sealed thereto to form tabs 30 and 31, as illustrated in FIGURE 3. The width of the flaps 26 and 27 are correlated so that when the flaps are folded onto the wrapper, forming tabs 30 and 31, and the wrapper is placed about the article to be wrapped with the wings 22 and 23, and the tabs 30 and 31 abutting one another, the outer edges of the tabs 30 and 31 will be

spaced apart, and the inner edges of the tabs 30 and 31 will be coterminous.

The spaced apart tabs 30 and 31 provide an opening means for the package which may be readily grasped by the fingers. The tabs 30 and 31 do not stick to one another since the abutting faces thereof are not coated with the pressure sealable coating material, and the spacing between the outer edges of the tabs allows for the ready insertion of a finger between the tabs for separating of the tabs prior to opening of the package as discussed hereinafter.

In accordance with a preferred embodiment of the invention, and as illustrated in FIGURE 1, the wrapper is provided with an alternate opening means which includes a tear tape 32 bonded to the inner surface of the blank 10 i.e. that surface covered with Elvax coating material. The tear tape 32 extends longitudinally of the blank 10 and is bonded to the inner surface of the central body portion 11 adjacent the edge of the body portion 11. Preferably, and as shown in FIGURE 1, the tear tape 32 is bonded to the inner surface of the panel 18 adjacent the fold line 24 which defines the edge of the wider wing 22. The spacing of the tear tape 32 from the fold line 24 is an important feature of the invention and is described in detail hereinafter. To afford increased convenience in operating the tear tape during the opening of the package from which the blank 10 is formed a pull tab 34 is provided as an integral part of the tear tape 32. The pull tab 34 projects outwardly from the edge of the blank 10 and permits manual grasping of the tear tape 32, when it is desired to open the package.

A previously mentioned, the laminate from which the blank 10 is fabricated is virtually impossible to tear manually. However, it has been discovered that by pre-slitting the blank 10 in the vicinity of the pull tab 34 this difficulty is overcome, and manual tearing of the laminate material becomes possible, thereby permitting convenient opening of the package. Accordingly, a pair of slits 36 and 37 are provided in the blank 10. The slits 36 and 37 extend a slight distance inwardly into the marginal edge 25 of the blank 10, and are closely spaced from the opposed outer longitudinally extending edges of the tear tape 32.

Preferably, the blanks are cut from a rolled web 42 of the laminated material, such a web being illustrated in FIGURE 2. As shown, the web 42 is arranged so that a plurality of the blanks 10 may be cut therefrom by suitable dies or cutters, which also preferably form the slits 36 and 37 in the blanks adjacent the pull tab 34. Each blank 10 may include an electric eye mark 43, as shown, which can be provided adjacent an appropriate corner of the blank 10. This eye mark facilitates indexing the web of material for the initial cutting and subsequent folding operations.

As shown in FIGURE 2, the tear tape 32 extends continuously along the entire length of the web 42, and the manner of proportioning and cutting the individual blanks permits each blank to have a readily accessible tear tape. As may be further seen from FIGURE 2, when the individual blanks are cut from the web 42 so that the outwardly projecting pull tab 34 is formed, the preceding blank carried on the web will be provided with a notch 44 on its marginal edge which is common to the succeeding blank. Thus, on each of the blanks 10 the ends of the tear tape 32 are defined by the notch 44 and the pull tab 34.

The tear tape 32 allows for the rapid and complete opening of the package, along with substantial destruction thereof. When it is desired to remove the entire contents of the package at one time, the use of the tear tape greatly facilitates the opening of the package. However, the opening of the package with the tear tape substantially destroys the package and when less than the entire contents of the package are to be used, it is generally preferable to use tabs 30 and 31 to open the package. When the entire contents of the package will normally not be used at a single time it is contemplated that the tear strip

can be omitted from the wrapper. However, it is usually desirable to provide a wrapper having both opening tabs and a tear strip in order to provide alternative opening means.

Now referring to FIGURES 3, 4, and 5, successive stages in the manufacture of the package of the present invention are illustrated. The package illustrated in these figures is inverted in order to more particularly illustrate certain features of the present invention, so that the ultimate bottom surface is shown as the top. As a preliminary step in forming the package, the flaps 26 and 27 are folded inwardly onto the inner surface of the wings 22 and 23 and are sealed thereto forming tabs 30 and 31. The blank 10 is then disposed about a generally rectangular-shaped block of material 50 to be packaged, such that the Elvax coating faces inwardly in contact with the block material 50.

The blank 10 is initially disposed about the block 50 in an open-ended configuration, as shown in FIGURE 3. The wings 22 and 23 are folded upwardly along fold lines 24 and 25 and are brought into face-to-face relationship with the tabs 30 and 31 in face-to-face abutting relationship with the outer edges of the tabs 30 and 31 being spaced apart and the inner edges being coterminous. The wings 22 and 23 are then heat sealed together beneath the tabs 30 and 31 and closely adjacent to the fold lines 24 and 25. This forms a longitudinally extending fin seal 51 in the wings 22 and 23 adjacent the surface of the block 50. The fin seal 51 has a relatively narrow width in comparison to the width of the wings 22 and 23, and the extremities of the wings, including the tabs 30 and 31, are unsealed. The unsealed portion of the wings and the spaced apart tabs provides a finger grip for breaking the longitudinal fin seal if it is desired to open the package in this manner.

The fin seal 51 forms a seam 52 in the wings 22 and 23 which extends along the base or lower edge of the fin seal 51 closely adjacent to the fold lines 24 and 25. When the package includes a tear tape 32, as illustrated in FIGURES 3 to 5, the tear tape 32 is also closely spaced from the fold line 24 on the opposite side of the fold line from the seam 52. As previously mentioned, the arrangement of the wrapper and the spacing between the seam 52 and the tear tape 32 is an important feature of the present invention. With both the seam 52 and the tear tape 32 closely spaced to one another on opposite sides of the fold line, the seam 52 provides a guide for tearing. The provision of such a guide makes it possible to effect a precise, straightline tear in the tough, tear-resistant laminate. Consequently, precise and convenient opening of the package is possible by suitably manipulating the tear tape 32 so that it continuously bears against the seam 52 during the opening of the package. A satisfactory spacing between the tear tape 32 and the seam 52 has been found to be between about  $\frac{1}{8}$  and  $\frac{1}{4}$  of an inch, although in certain instances a different spacing may be suitable.

Referring to FIGURE 4, the next step in the formation of the package is forming the end seals to close off the ends. The upstanding wings are folded down onto the surface of the block 50. Preferably the wings are folded away from the tear tape 32 and with the wider tab 30 on top of the narrower tab 31. The end fin seals 54 and 56 are then formed at the opposed ends of the package. The fin seals 54 and 56 are formed by initially folding the ends of the laminate material which extend outwardly beyond the block of material 50 inwardly into facing relation with the end faces of the block 50. The blank 10 is of a sufficient size such that the edge of the laminate material extends outwardly from the block 50 after the ends of the block 50 are covered. These outwardly extending extremities of the laminate are then joined by heat sealing forming the fin seals 54 and 56. The joiner is effected along a plane passing approximately centrally through the block 50, parallel to its upper and lower surfaces.

As a result of the formation of the end fin seals 54 and 56 by the joiner of the opposed inwardly facing portions of the blank 10, which do not contact the block of material 50, a pair of generally triangular-shaped ears 58 and 60 are formed at the outer extremities of each of the fin seals 54 and 56 due to the gathering of the excess material at these locations. The pairs of ears 58 and 60 are adapted to be folded over onto the ends of the package, as is subsequently explained in detail, in order to form a neat and compact package.

As the final step in forming the completed package, as shown in FIGURE 5, the end fin seals 54 and 56 are folded downwardly onto the ends of the package and the ears 58 and 60 are then folded inwardly onto the ends of the package. As seen in FIGURE 5, the ears 58 and 60 do not extend over the portion of the fin seal 51 adjacent which the tear tape 32 is located or over the folding wings 22 and 23 so that the package may be readily opened in either of two ways.

After the formation of the ends of the package has been completed, a substantially airtight and moisture-proof package results, which is extremely durable and which is attractive and neat in appearance. Moreover, this package is relatively easily and precisely openable by the application of a suitable tensional force on the tear tape 32.

In operating the tear tape 32 to open the package, for complete removal of the contents thereof, a tensional force is manually applied to the pull tab 34 and a neat appearing precise laceration on the surface of the package is effected by guiding the tear tape against the seam 52. When it is desired to open the package for partial removal of the contents, the wings are folded upwardly. The spaced apart edges of the tabs allow for easy grasping of the tabs with the fingers and the wings are pulled apart, breaking the fin seal 51 and exposing the contents of the package. The package, when opened in this manner, may be reclosed and resealed by abutting the wings and applying moderate pressure.

Various changes and modifications may be made in the above-described package without deviating from the spirit and scope of the present invention.

Various features of the invention are set forth in the following claims:

What is claimed is:

1. A gas and moisture impervious package for enclosing a generally rectangular block of a comestible, said package comprising a generally rectangular sheet of tough substantially gas and moisture impervious material having a thermoplastic heat sealable coating on the inner surface thereof, said sheet including a central body portion for enclosing the top, bottom and side surfaces of said block, a wing attached to and coextensive with each of the opposed longitudinal sides of said body portion, one of said wings being wider than the other wing, a flap attached to and coextensive with each of said wings, said flaps being folded interiorly of said wings forming tabs, said sheet having a length sufficient to extend beyond the ends of said block to cover the end surfaces of said block in face-to-face contacting relation and to provide end sealing areas, said sheet being disposed about said comestible block with said heat sealable material in contact with said comestible block and said body portion encircling said comestible block, said wings being arranged in abutting face-to-face relation along the length of said block with the outer edges of said tabs spaced apart, a continuous longitudinal heat seal extending along the length of said abutting wings closely adjacent to said block, and continuous end fin heat seals along said end sealing areas, whereby a gas tight, moisture impervious package is provided which is easily opened and which may be reclosed and resealed after opening.

2. A package in accordance with claim 1 wherein a longitudinally extending tear strip is bonded to the inner surface of said sheet closely adjacent the edge of said body portion, one end of said tear strip extending beyond at

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least one of the ends of said sheet, and said sheet being provided with a slit on each side of said tear strip, said slits extending from the marginal edge of said sheet to a point located in said end seals.

3. A package in accordance with claim 1 wherein the flap attached to the wider wing is wider than the flap attached to the narrower wing, whereby said flaps are of dissimilar width.

4. A package in accordance with claim 2 wherein the inner edges of the tabs are coterminous when said wings are in abutting relationship.

5. A package in accordance with claim 2 wherein the inner edge of said longitudinal heat seal forms a generally linear seam extending along the base of said seal parallel to and closely adjacent said tear strip, whereby a guide is provided against which said tear strip continuously bears during the opening of said package.

6. A package in accordance with claim 1 wherein said tear strip is positioned between approximately 1/8" and 1/4" from said longitudinal fin seal.

7. A package in accordance with claim 6 wherein said longitudinal fin seal is folded onto the surface of said package, and wherein said end seals are folded onto the end surfaces of said package and include outwardly projecting ears which are folded inwardly onto the end surfaces of said block overlying portions of said end fins seals, said ears terminating in spaced relationship from said longitudinal fin seal, whereby an unimpeded path is provided for movement of said tear tape.

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8. A package in accordance with claim 1 wherein the sheet of material comprises a laminate including an intermediate layer of flexible, tear-resistant, gas and moisture impervious synthetic film, an inner layer of a thermoplastic coating composition having low gas and moisture transmission properties, and an outer layer of metal foil.

9. A package in accordance with claim 7 wherein the intermediate layer comprises polyethylene terephthalate resin, the inner layer comprises a mixture of ethylene vinyl acetate and paraffin wax, and the outer layer comprises aluminum foil.

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