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[54] **PACKAGE FOR STORING AND HEATING FOOD AND METHOD OF FORMING SAME**
8 Claims, 16 Drawing Figs.

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 229/66, 229/DIG. 14, 99/171 M

[51] Int. Cl. **B65d 81/34**

[50] Field of Search **99/171 H,**
 171 LP, 171 M, 174, 171; 229/3.5, 66, 51 IS

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ABSTRACT: A package for containing and storing food and heating the contained food in a toaster including a top margin folded upon itself at least twice, a longitudinal margin folded upon itself and flattened to the package to form a longitudinal fold line, and a tear notch aligned with the longitudinal fold line whereby the package may be vented by tearing through the top margin on the longitudinal fold line from the tear notch and the food may be readily removed after tearing the longitudinal fold line by pulling the longitudinal margin from the top to the bottom of the package. A method of forming the package including spacing food portions along a strip of sheet material, folding the sides of the sheet material over the food portions, forming the longitudinal margin by sealing the side edges of the strip and folding the longitudinal margin upon itself, sealing the strip at areas between food portions, severing the strip to form top and bottom margins, folding the top margin upon itself twice, and cutting a tear notch at the top margin.

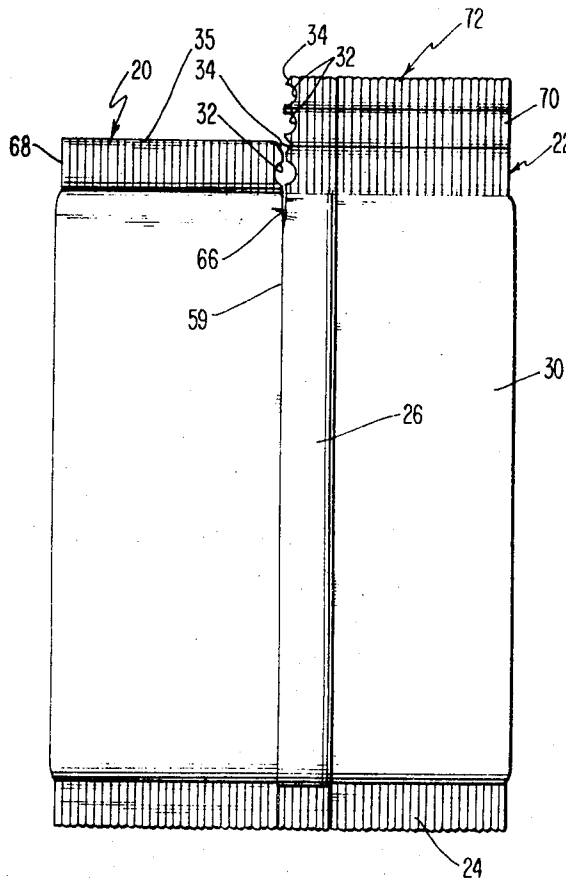


Fig. 1

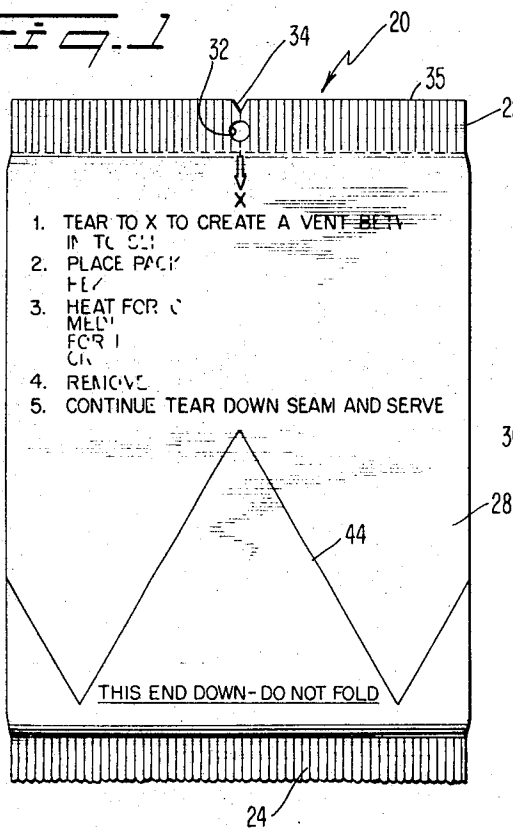


Fig. 2

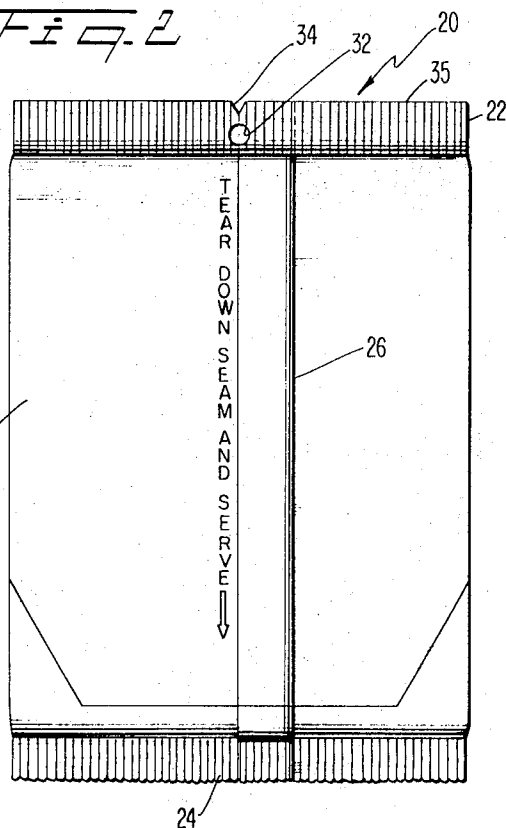


Fig. 3

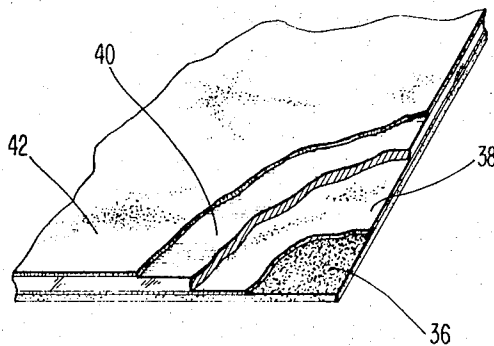
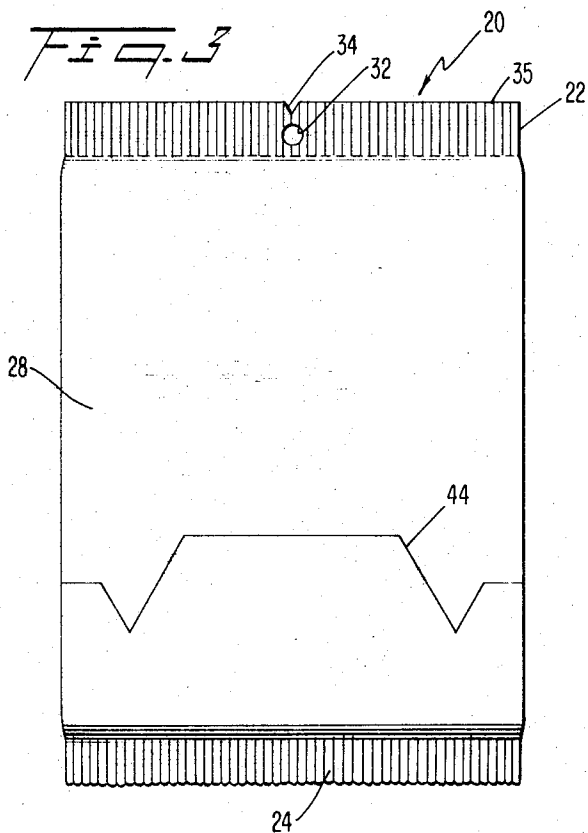


Fig. 4

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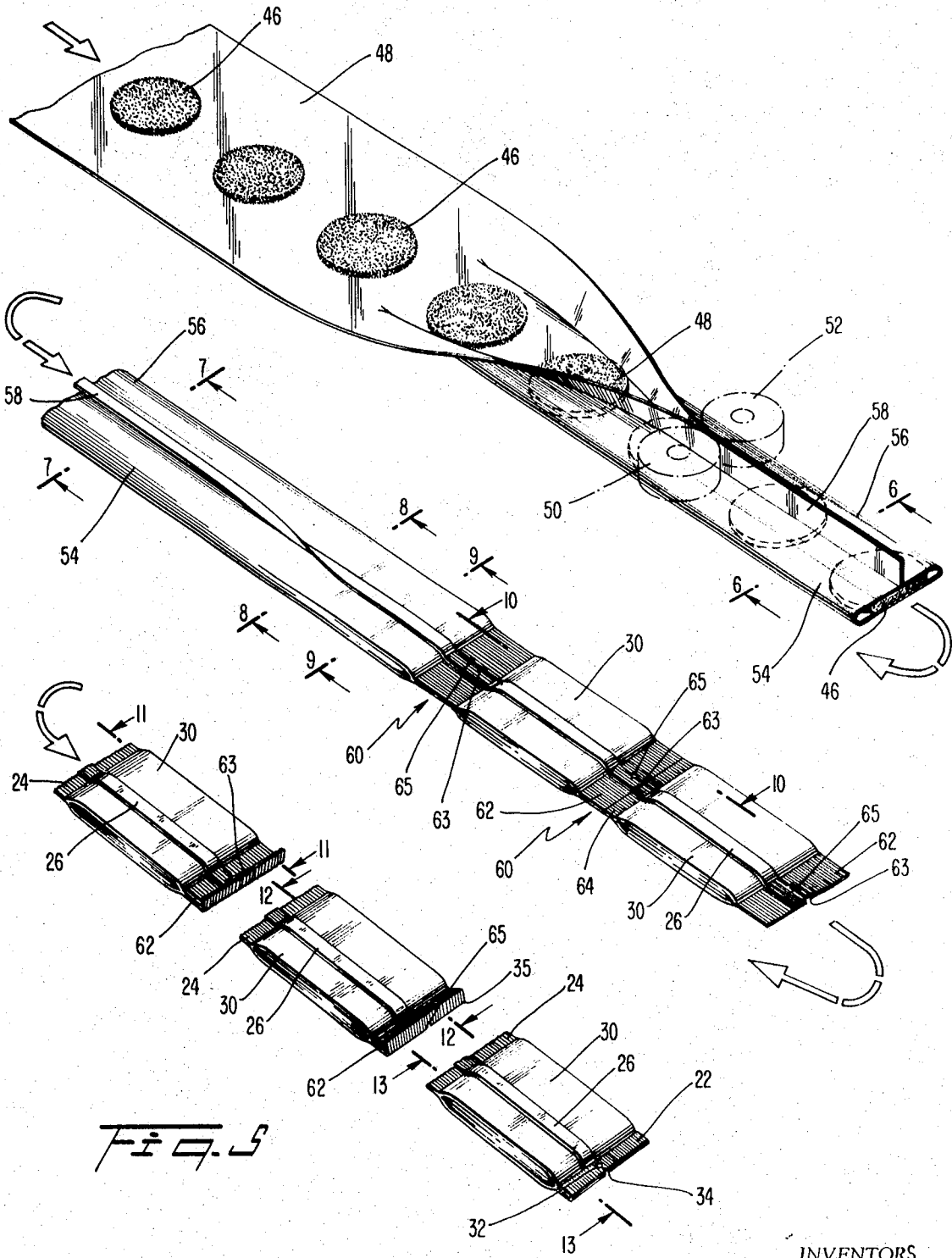
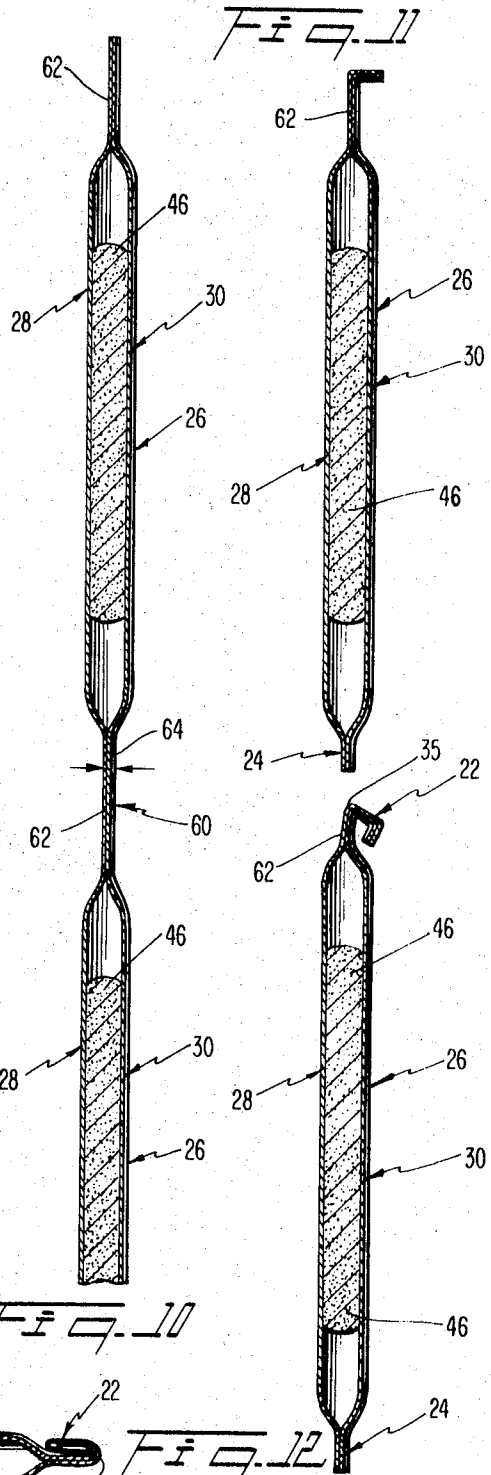
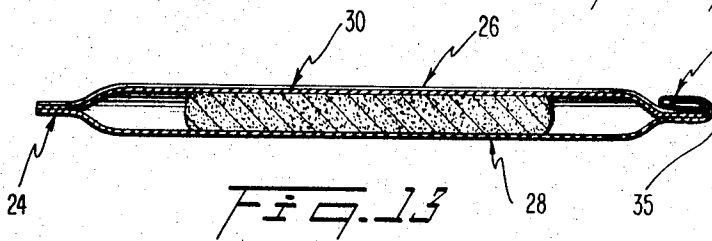
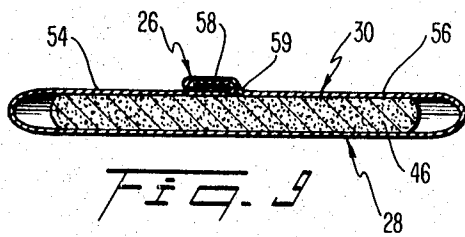
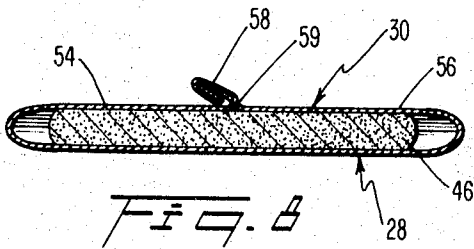
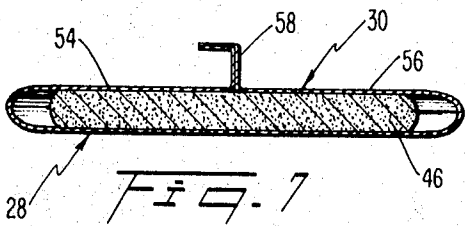
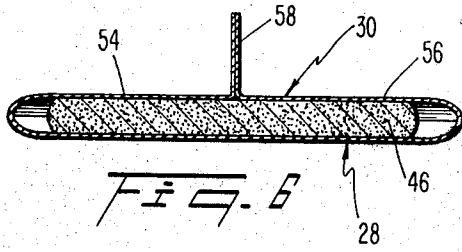
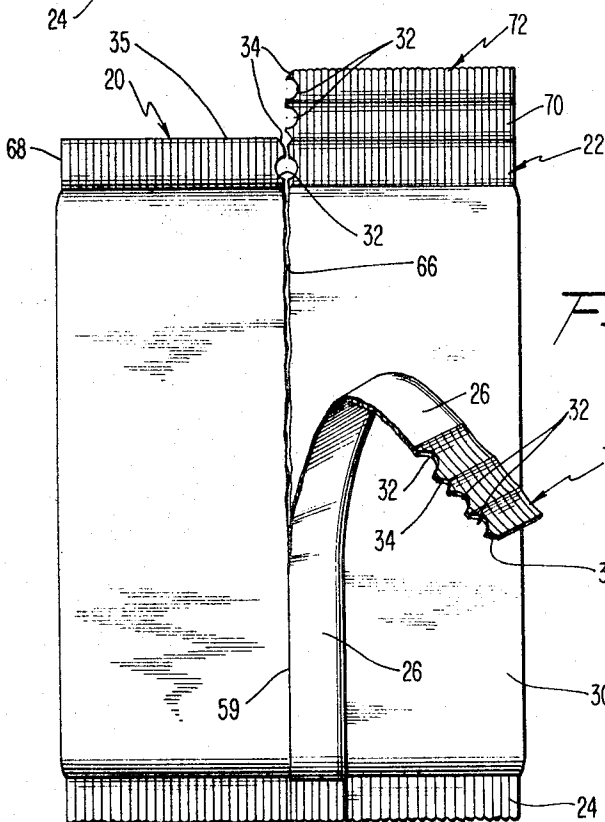
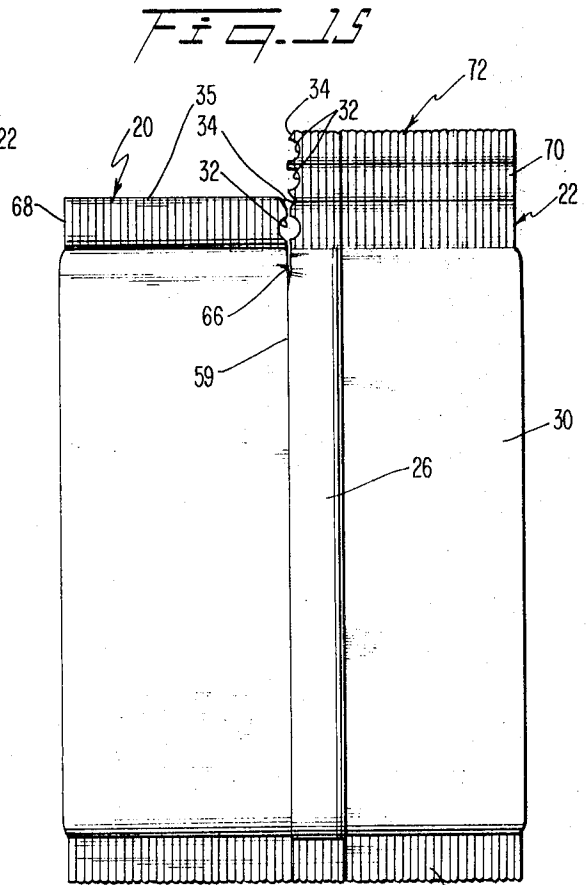
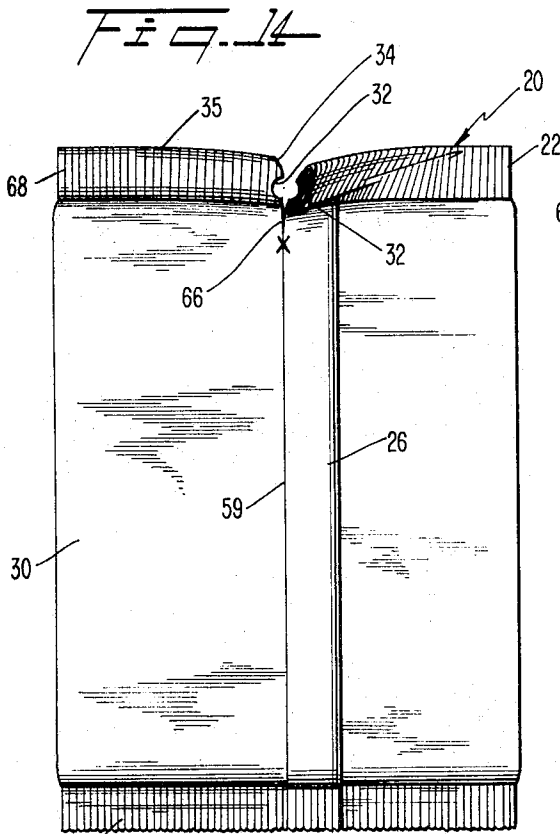


FIG. 3

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PACKAGE FOR STORING AND HEATING FOOD AND METHOD OF FORMING SAME

BACKGROUND OF THE INVENTION

The present invention pertains to food packages and more particularly to convenience food packages for storing and cooking food without removal from the package.

Some dry foods, such as rice, flour, sugar etc., which are not adversely affected by exposure to air have been packaged for both storage and transportation in containers, such as cardboard boxes and paper bags, which provide protection from moisture and foreign matter. In the past foods that require protection from air have been either canned or, more recently, packaged in flexible containers that do not have the disadvantages of cans which are relatively heavy, bulky, rigid and of fixed shape.

With the advent and popularity of frozen foods, flexible packages have become more or less a necessity in that they permit maximum utilization of freezer space and the packaging of foods of varying shapes and sizes. They also are more convenient to handle during preparation and heating. These advantages have made flexible containers popular for a wide variety of foods. However, flexible packages have not reached their full potential because they have not as yet efficiently eliminated the inconvenience of placing the package containing the food, or first removing the food from the package and placing it, in suitable cooking pots or pans, heating or cooking on a stove or in an oven and measuring out portions before serving. This procedure consumes a large amount of time and even more time is wasted in the cleaning of heating or cooking equipment such as stoves, ovens, pots, and pans after use. Moreover, misjudgment in the amounts of prepared food needed results in too much food leftover or not enough. Misjudgments in the amount of each serving also results in wasted food which is left uneaten.

These problems are of considerable importance in the restaurant and institutional industries including airlines, cafeterias, hotels, motels, hospitals, drug stores, department stores, vending machines, clubs, schools and the like since it is desired to serve food to large numbers of patrons or patients in a minimum of time with a minimum of effort and manpower.

The armed services are faced with similar problems where large numbers of people are served meals. The problems are further multiplied by the wide range of tastes of patrons or patients further increasing the size and number of cooking equipment to be used, the amount of cleanup time and effort needed and the amount of wasted food.

Similar problems, on a smaller scale, however, are faced in the home and the intensity of the problems varies with the size of the family. There is great interest for the housewife in eliminating or reducing food preparation and cleanup time and effort.

In small families or with persons living alone it is very difficult if not impossible to purchase food for preparation in single serving portions or even two or three portions. For such families or persons leftovers are inevitable. Elderly people and others who are concerned with their diet have difficulty in controlling the size of servings consistent with their dieting needs or objectives.

Members of most families have different likes and dislikes in foods, thus adding to the feeding problems of the housewife and potential waste because of leftovers and spoilage. Families having infants or small children who are not able to consume the usual family menu repeatedly face the problem of leftovers and potential spoilage of baby foods. Busy families whose members have different schedules are on the increase in our way of life and present problems to the housewife in serving adequate nourishment to the family in appetizing form.

As an example, meats tend to be both the highest cost and most time consuming element of at-home meals. The housewife probably spends more time in preparing meats and in cleaning up after preparation of meats than any other food. Yet very little has been done to provide modern convenience

and effective economy in the meat category. There is every indication of a great demand by the housewife as well as institutions, restaurants and other food servers for a high quality, precooked, portion-controlled, easily stored ready to heat-and-eat packaged meat product as well as other food servings such as soups, sauces, gravies, vegetables, rice and all other kinds of cooked or heated table foods.

In the past packages have been designed with the object of both storing and cooking relatively small measured portions of food therein. However, none of these packages have in practice proved adequate in eliminating or reducing the problems connected with food preparation while also providing a container that may be both economically formed and sufficiently rigid and sturdy to withstand the punishment concomitant with the purveying of food which includes handling by the producer, transporter and server.

Some disadvantages of prior packages for both storing and cooking food are that such packages have a considerable tendency to tear to permit air to enter and spoil the food. Also, prior packages have not been formed in such a manner as to facilitate handling without unduly damaging the package and because of their structure the venting of such packages for cooking or heating cannot be easily and precisely accomplished. The removal of food from the prior packages has been difficult and because of the fragile and easily tearable nature of the metallic foil used in the construction of such packages structural sturdiness has not heretofore been achieved. In addition, the prior packages have been designed for specific foods rather than having a universal design capable of containing a large variety of foods.

U.S. Pat. Nos. 2,609,301 to Lindsey, 2,633,284 to Moffett et al., 2,807,550 to Zarotschenzeff et al., 2,881,078 to Orritt, 2,912,336 to Perino, 3,117,875 to Burns et al., 3,132,029 to Beck, 3,185,372 to Gerraro, 3,322,319 to Sweeney et al., and 3,361,576 to Jacobsen disclose packages for storing food and cooking food in the packages in toasters; however, the packages disclosed in these patents all suffer from one or more of the above-mentioned disadvantages. For instance, none of these patents disclose a package that is both compact and yet can be rendered readily accessible in a toaster. None of these patents have overcome the main problems concomitant to packages made of metallic foil, namely, its propensity for undesired tearing, puncturing and mutilation and, in practice, none have proved adequate in eliminating or reducing the problems mentioned above.

Specifically, it is desirable to package foods such that conventional electric toasters can be utilized for cooking or heating and such that the portions of food therein are individualized.

The toaster is one of the most common, least expensive and probably least used appliances in home, commercial and institutional kitchens. Almost every kitchen has one or more. The toaster also is one of the easiest heating appliances to operate and maintain and very seldom requires cleaning. As such it provides an almost ideal implement of convenience in "instant" meal preparation.

SUMMARY OF THE INVENTION

The present invention is directed to food packages and methods for making same providing a practical system for storing an almost unlimited variety of cooked, partially cooked and uncooked foods in measured or controlled portions, such as individual servings, for prolonged periods of time while maintaining nutritional values and in a form which permits rapid and convenient preparation and serving with little or no loss of tastiness, flavor and freshness. Unlike most packaging systems currently in use, the invention provides unitary food packages containing measured or controlled portions which can be individual servings or low multiples of individual servings. The invention also admits of merchandising a wide variety of foods, for example, in combination packs of individual foods making up a balanced meal which can be fully prepared solely through the use of any conventional toaster.

Illustrative of foods which can be packaged in accordance with the present invention are beef burgundy, hamburgers (seasoned and unseasoned), pizza burgers, beef stew, beef stroganoff, corned beef slices, boneless short ribs of beef, hickory smoked beef slices, roast beef slices (with and without gravy), barbecued beef, ham slices and steaks, chicken slices, turkey slices, meat loaf (with and without gravy), veal parmesan, veal cutlet (breaded and otherwise), chicken fried steak, meat balls, meat balls in spaghetti sauce, Swedish meat balls, Salisbury steak (with or without onions) lamb chops, Swiss steak, beef steaks, pork chops, fish, breaded filets, mushrooms (with and without gravy), gravies (chicken, brown, beef, etc.), sauces (white, hollandaise, barbecue, etc.), stuffings (turkey, meat, bread, etc.), cocktail franks, corn-muffins, dinner rolls, spaghetti sauce, spag O's with meatballs, shrimp fried rice, chicken chow mein, tamales, chicken a-la-king, chicken fricassee, Manhattan clam chowder, New England clam chowder, chili, ravioli, sloppy Joe, beef gravy, cream corn, sweet peas, chocolate fudge sauce, fried clams, clam sticks, fish sticks, shrimp cakes, shrimp marinara, sweet sausage and peppers, instant mashed potatoes, instant sweet potatoes, egg rolls, stuffing, rice, garlic bread, soup (dehydrated), coffee, baby foods, hot chocolate, cereals, tea, pet foods, hot gravies for pet foods, pie fillings, custards, toppings (chocolate, butterscotch, etc.), desserts (puddings, etc.), vegetables (with and without sauces, butter, etc.).

These foods, especially the meats, are preferably fully prepared, precooked and frozen requiring only thawing and reheating prior to serving. In this connection it has been unexpectedly found that the toasting times and temperatures characteristic of conventional toasters are fully adequate for thawing and adequately reheating frozen foods to temperatures which are high enough for serving and eating. Foods that are amenable to storage without freezing or refrigeration, of course, need not be frozen or refrigerated but simply stored on the shelf in the packages of this invention. Cereals, dehydrated soups, hot chocolate powders, tea and other shelf stable foods fall into this category. Also, those foods which are of the instant type requiring only the addition of hot water and those foods which require only a small amount of cooking time need not be precooked. Cereals, rice, hot chocolate powders and tea fall into this category.

The present invention drastically reduces the time, effort and manpower needed for the preparation and serving of meals. It substantially eliminates the need for measuring out portions, since each package contains a controlled amount of food. It permits a wide range of selectivity for serving a wide variety of personal tastes at one sitting with almost no extra effort and in a minimum amount of time. It also permits more precise control of food intake without wastage for those concerned with diet and allows the preparation of single meals which are well balanced for those who live alone. It substantially eliminates leftovers and cuts cleanup time to a minimum. Cleaning of cooking equipment is obviated, since no pots and pans are used and the package after use is simply discarded. The only heating appliance used is the conventional toaster which, with a minimum of care, is not dirtied. The present invention permits an ultimate of convenience in the preparation of full, well-balanced, appetizing meals without any expenditures for expensive heating or cooking equipment.

The packages of the present invention are not only useful in the home but find extensive utilization in commerce in restaurants, hotels, clubs, cafeterias, vending machines, snack bars, lunch counters, food stands, in hospitals, nursing homes, prisons, schools, colleges, in the armed services, employees cafeterias, and in any kitchen whether private, commercial or institutional.

Specifically, it is an object of the present invention to construct a package for storing and cooking foods that is pliable yet resists tearing and mutilation.

Another object of the present invention is to construct a package for storing and cooking foods in a toaster having a thickened top margin to resist tearing and facilitate handling.

A further object of the present invention is to provide a handling tab for a package to facilitate the cooking of food in a toaster such that, when the package is in use, the handling tab extends above the toaster to facilitate insertion into and removal from the toaster, but, during shipping, handling and storage prior to use, the handling tab is folded down or in a retracted position where it is protected from mutilation or damage.

The present invention has another object in that a package for storing and cooking food may be constructed of a single sheet of pliable, heat resistant, thermally conductive, non-porous sheet material folded upon itself and has a folded longitudinal margin and a folded top margin to provide configuration strength for the package.

Another object of the present invention is to utilize a longitudinal sealing margin having a longitudinal fold line associated therewith in alignment with a tear notch provided in a transverse sealing margin of a package to provide precise venting of the package for cooking and to provide a well-defined tear line which facilitates opening and removal of food from the package after cooking.

A further object of the present invention is to provide a method for packaging food in pliable, heat resistant, thermally conductive, nonporous sheet material such that food portions may be individually packaged with the use of only three seals, two of which are folded to provide thickened margins.

The package of the present invention is advantageous over previously known packages in that the package is tear resistant due to a thickened top margin, the package can be economically formed from a single sheet of material, the package retains its configuration due to the cooperation of a thickened longitudinal margin and a thickened top margin, the package is easily and precisely vented for cooking, food may be easily removed from the package after cooking, and utilization of the package with conventional toasters is facilitated by the provision of a handling tab which is in a protected position during shipping and storage but is extended when the package is prepared for heating.

The present invention is generally characterized in a package for storing food and heating the food by insertion into a toaster comprising a pouch of pliable, heat resistant, thermally conductive, nonporous sheet material, a sealed top margin for the pouch being folded upon itself and a tear notch cut in the top margin intermediate the sides of the package to facilitate venting of the package and to provide, after manipulating a portion of the top margin, a handling tab for insertion and removal of the package from the toaster. The present invention is further generally characterized in a method of packing food in pliable, heat resistant, thermally conductive, nonporous sheet material comprising the steps of spacing food portions on a strip of the sheet material folding the sides of strip of sheet material over the food portions, sealing the side edges of the strip to form a longitudinal margin, folding the longitudinal margin upon itself, flattening the longitudinal margin, sealing the sheet material in the spaces between the food portions, severing the sheet material in the sealed spaces to provide a top margin and a bottom margin, folding the top margin upon itself and cutting a tear notch in the top margin.

The apparatus shown and described in Griner patent U.S. Pat. No. 3,402,524 and the method shown and described in Griner patent U.S. Pat. No. 3,403,033 with modification are available for the low-cost, automatic mass-production of filled food packages of the present invention. Also, the conveying, collecting and metering method and apparatus shown and described in Griner patent U.S. Pat. No. 3,402,803 with modification are available for handling and packing the filled food packages of this invention. It can be readily seen that the methods, apparatus and technology are available for producing, handling and packing the filled food packages of this invention at high rates of production and low cost.

Further objects and advantages of the present invention will become apparent from the description of the preferred embodiments as shown in the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a front elevation of a package constructed in accordance with the present invention;

FIG. 2 is a rear elevation of the package of FIG. 1;

FIG. 3 is a front elevation of a modification of the package of FIG. 1 having a different configuration for the heat absorptive area;

FIG. 4 is an enlarged, broken view of the sheet material utilized in the construction of the packages of the present invention;

FIG. 5 is a simplified perspective view illustrating the steps of forming packages according to the present invention;

FIG. 6 is a sectional view of a partially formed package taken on line 6—6 of FIG. 5;

FIG. 7 is a sectional view of a partially formed package taken on line 7—7 of FIG. 5, illustrating the first fold of the longitudinal margin;

FIG. 8 is a sectional view of a partially formed package taken on line 8—8 of FIG. 5, illustrating the second fold of the longitudinal margin;

FIG. 9 is a sectional view of a partially formed package taken on line 9—9 of FIG. 5, illustrating the flattened longitudinal margin;

FIG. 10 is a sectional view taken on line 10—10 of FIG. 5, illustrating the manner of severing the individual packages;

FIG. 11 is a sectional view taken on line 11—11 of FIG. 5, illustrating the first fold of the top margin;

FIG. 12 is a sectional view of a partially formed package taken on line 12—12 of FIG. 5, illustrating the second fold of the top margin;

FIG. 13 is a sectional view of the completed package taken on line 13—13 of FIG. 5;

FIG. 14 is a rear elevation of the package after venting the top of the package;

FIG. 15 is a rear elevation of the package after the unfolding of a portion of the top margin to form a handling tab; and

FIG. 16 is a rear elevation of the package showing the longitudinal fold partially torn downwardly in the process of opening the package.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

A package 20 according to the present invention is shown in front elevation in FIG. 1 and in rear elevation in FIG. 2 and includes a sealed top margin 22 and a pouch including a sealed bottom margin 24 and a sealed longitudinal seam or margin 26. Package 20 is formed of a single sheet of material folded upon itself to form a front panel 28 and a rear panel 30 with the upper portions of the inner faces sealed together to form top margin 22, the lower portions of the inner faces sealed together to form bottom margin 24 and the side portions of the inner faces sealed together to form longitudinal margin 26.

As will be described in more detail hereinafter, top margin 22 is advantageously folded upon itself twice. The increased strength of the top margin 22 due to the double fold permits it to be used as a grip or handle to decrease the chance of tearing or mutilation of the package during handling, and also permits the package to be stored on a hook inserted through a hole 32 through the center of top margin 22 without the danger of damaging or seriously weakening the package. When cooking or heating the contents of the package, it is desirable to permit the inside of the package to communicate with the atmosphere to release internal pressures which tend to build up during heating. Thus, a tear notch 34 is cut at the top fold line 35 of top margin 22 to indicate where the package should be vented and to aid in tearing the material in a straight line just through the lower edge of the top margin 22 to provide the small vent required.

Bottom margin 24 is sealed in face-to-face relationship and need not be folded since handling and storing may be accomplished through top margin 22.

Longitudinal margin 26 is folded twice, as will be described in more detail hereinafter, to give longitudinal strength to the package, to provide a guide for venting, and to provide a sim-

ple and effective tear strip to facilitate opening the package and removing the contents.

An example of a pliable, heat resistant, tearable, thermally conductive, nonporous material suitable for use with the present invention is illustrated in FIG. 4 and includes an outer layer 36 consisting of a coating of dark colored epoxy resin approximately one ten-thousandth of an inch in thickness, bonded to an internal layer 38 of a coating of dielectric material having a thickness of approximately two ten-thousandths of an inch. The internal layer 38 is bonded to a base layer 40 of metallic foil having a thickness of approximately fifteen ten-thousandths of an inch, and an inner layer 42 bonded to layer 40 of heat sealable material approximately one ten-thousandth of an inch in thickness.

Especially preferred as the metallic foil is aluminum foil which can be used in the thickness given above or in thicker or thinner sizes as desired or required for specific applications. Stainless steel foil is also available and can be used if desired. Substantially any heat-conductive sheet material can be used as layer 40. For example, heat-resistant plastic films, such as Mylar, having thin coatings of vapor deposited metals are useful. Also, plastic films formed with substantial amounts of metallic particles dispersed throughout are also useful.

The dielectric layer 38 is for the purpose of electrically insulating the package in the event of contact with the heating elements of the toaster. Substantially all thermosetting plastics and high heat-resistant thermoplastics in the absence of electrically-conductive additives are dielectrics or electrically insulative and any suitable thermosetting or high heat-resistant thermoplastic can be used. For example, epoxy resins similar to layer 36 can be used. Phenolic resins, melamine-formaldehyde resins, urea-formaldehyde resins and polyester resins are examples of suitable resins that can be employed in making layer 38.

The inner heat-sealable layer 42 comprises a transparent, heat-activatable adhesive, for example, a thermoplastic material having softening temperatures above those temperatures usually encountered in an electric toaster, for example, above about 500° F. The layer 42 is transparent so that the shiny, reflective inner surface of base layer 40 is preserved. High-melting polyester resins, vinyl chloride resins, vinyl chloride-vinyl acetate resins, polyacrylic resins and the like can be employed. When thermoplastic materials are used in any of layers 36, 38 or 42, such materials should not melt or soften to any undesirable extent at temperatures normally encountered in toasters and preferably not below 500° F.

Any type of lettering or designs such as labels, instructions, trademarks, etc. may be placed on the front and rear panels of the package. The outer layer 36 which, for example, may be formed of dark blue epoxy which is primarily heat-absorptive may be over-printed with various patterns of white which is primarily heat-reflective to control heat absorption and distribution inside the package in accordance with the heating requirements of the food product contained in the package.

For example, in FIGS. 1, 2 and 3, those portions above line 44 are of a dark color such as dark blue and those portions below line 44 are of a light color, such as white. Although heated air rises, a sizable proportion of heat escapes from the mouth of the toaster by radiation or convection currents such that temperatures in the lower portions of the conventional upright toaster tend to be considerably higher than temperatures near the mouth. The same considerations apply to horizontal toasters to the extent that temperatures deep within the toaster cavity tend to be much higher than the temperature near the mouth. In addition, the temperatures of the central portions of a toaster pack in a toaster tend to be higher than those portions adjacent the side edges. In order to obtain as uniform a temperature as possible throughout the package for the purpose of more uniform heating or cooking of the contained food, it is preferred that the primarily heat-reflective, e.g., white, pattern extend upwardly from the bottom portion of at least one of the panels of the package as best shown in FIGS. 1 and 3. The temperatures of the lower corner

portions of the package also tend to build up because of proportionately greater surface area per local contained volume exposed to radiation and the higher temperatures and lower rate of heat loss in the depths of the toaster cavity. Thus, in order to maintain a more even temperature distribution in the lower corner areas, they too are preferably light colored, e.g., white, as illustratively shown in FIGS. 1 and 3. The light, primarily heat-reflective areas which extend upwardly on the sides and in the center of the panel are preferably tapered upwardly as shown in FIGS. 1, 2 and 3 to correspond to the temperature gradient in the toaster cavity. The upwardly extending tapered, primarily heat-reflective areas can be truncated with primarily heat-absorptive areas as shown in FIG. 3, if desired, at any desired point to result in a higher temperature in the truncated areas.

As shown in FIG. 2, the longitudinal fold 26 is coated almost substantially completely with a primarily heat-absorptive coating to enhance penetration of heat through the fold.

A method of forming package 10 with a food product therein is illustrated in FIG. 5, and it should be clear that while a patty 46 such as hamburger or sausage is illustrated the method can be used with any food to be packaged.

A flat strip 48 of sheet material, such as the material illustrated in FIG. 4, is conveyed in the direction of the arrows, and a plurality of patties 46 or other portions of food are disposed thereon and are spaced from each other to leave a sufficient amount of the strip 48 therebetween to form top margin 22 and bottom margin 24. A pair of heated rollers 50 and 52 are mounted above the strip 48 and patties 46 at a suitable distance to permit a double thickness of strip 48 and patties 46 to pass thereunder. To commence the packaging operation the side edge portions of material 48 are threaded between heated rollers 50 and 52 which operate to heat and press the side edge portions together in a face-to-face relationship. The heat aided by pressure activate the inner layer 42 to seal the side edge portions together.

The bottom of strip 48 ultimately forms the front panel 28, as best shown in FIGS. 6 through 9, and the rear panel 30 is formed from the two folded over sides 54 and 56. The longitudinal side edge portions of the folded over sides 54 and 56 are sealed in face-to-face relation at right angles to rear panel 30 to form a flange 58, best shown in FIGS. 5 and 6, as the first step in forming longitudinal seal 26. As it continues down the production line, flange 58 is folded once as shown in FIG. 7, folded again as shown in FIG. 8 to form a longitudinal fold line 59 and flattened or pressed onto side 54 of rear panel 30, as shown in FIG. 9. Thus, longitudinal margin 26 is sealed and folded flat with the rear panel of the package to provide a five-layer thickness of material to add strength to the package as well as improving the integrity of the seal.

After longitudinal margin 26 is double folded, the strip 48 is sealed by applying heat and pressure in the spaced 60 between patties to activate the heat sealable layer 42. The strip 48 then is stamp cut to provide a top portion 62 of a first package and a bottom portion 64 of a second package adjacent the first package. Each package 20 is severed with a sealed top portion 62 which is longer, for example, approximately three times longer than the sealed bottom portion 64 and a longitudinal margin 26 running the length thereof. If desired, cutouts 63 and 65 can be stamp cut at the same time to provide a tear notch 34 after double folding the top portion 62. Alternatively, the tear notch can be stamp cut after the package has been completed.

Top margin 22 is then formed, as shown in FIG. 10, by folding approximately one-third of top portion 62 onto itself, as shown in FIG. 11, making another equal fold as shown in FIG. 12 to form top fold line 35, and pressing or flattening the double-fold together to form top margin 22, as shown in FIG. 14. The cutouts 63 and 65, if properly positioned will then align themselves to form tear notch 34.

Tear notch 34 is preferably formed in such position that its apex is on longitudinal fold line 59 of longitudinal margin 26. Hole 32 may be punched or cut through top margin 22

directly below tear notch 34 in alignment with longitudinal fold line 59. If desired, hole 32 may be formed by stamp cutting during the severing step three holes in the top portion 62 which become aligned after folding to form hole 32.

The dimensions of package 20 should be less than those of the heating compartment of a conventional household toaster. However, the dimensions of package 20 are determined by the particular heating appliance in which it is designed to be heated; and, consequently, it is clear that packages according to the present invention may be designed for larger and different heating appliances in order to accommodate larger portions of food or to provide quicker heating.

The use of package 20 for heating or cooking and serving will be described with reference to FIGS. 14, 15 and 16.

Package 20 is retrieved from its storage space, wherein it may be stocked on a shelf or supported on a hook or rod through hole 32 in a freezer or closet, by grasping top margin 22 as a handle to prevent unintentional tearing or other damage to the package. Top margin 22 is grasped by the server with both hands, and force is applied to longitudinal margin 26 at tear notch 34 with one hand while holding top margin 22 steady with the other hand to tear package 20 just far enough downwardly to permit communication of the interior of the package with the atmosphere. The tear line 66 starting from tear notch 34 for forming the vent, is directed down longitudinal fold line 59 of longitudinal seal 26 and tearing is facilitated due to the weakening or fatigue of the metallic foil caused by the bend made in forming the fold. However, tearing is stopped as soon as venting has been established. In order to assure proper venting a mark may be printed on rear panel 30 to indicate the proper termination of the vent tear line.

Venting of package 20 separates top seal 22 into two portions 68 and 70. Portion 70 may now be unfolded, as shown in FIG. 15, to form a handling tab 72 which facilitates insertion of the package 20 into and removal from a toaster. Thus, by combining handling tab 72 with package 20 the package may be compactly formed to require only a minimum of space for storage while retaining a gripping edge or handling tab which extends out of the toaster and remains sufficiently cool to facilitate easy access to the package.

Package 20 is protected from damage caused by the heating elements inside the toaster due to its simplicity of design and smooth surfaces which permit no loose edges or flaps that could be accidentally snagged in the toaster. By keeping bottom margin 24 relatively short, package 20 has a good base of support at the bottom of the toaster which support is enhanced by longitudinal margin 26. Conventional toasters are ideal for use with the package of the present invention since they provide good heat and have timing devices constructed integrally therewith. Once package 20 is inserted in the toaster, the toaster is energized under the control of the timing device, and whether the food contained in package 20 is to be actually cooked or merely heated depends on the type of food and its desired preparation. Vent 66 permits steam and vapors to escape to the atmosphere and the size of the vent may vary with desired cooking conditions.

Once the contents have been sufficiently heated or cooked, package 20 may be removed from toaster 73 with the aid of handling tab 72 which extends out of toaster 73 and remains cool. In order to serve the food the top end of longitudinal margin 26 which also was out of the toaster and remained cool is grasped and pulled from the top to the bottom of the package. Thus, margin 26 is used as a tear strip 74, and as previously mentioned margin 26 is easily torn along longitudinal fold line 59 due to the weakening of the metallic foil by the bend of the fold. Tear line 66 is now extended through the entire length of the package to fully open the package and permit easy removal of the food for serving or to permit the food to be eaten directly from the package.

The characteristics of material 48, as structurally described with respect to FIG. 4, are excellent for cooking or heating since inner layer 42 is heat reflective to evenly distribute heat

and since outer layer 36 may be printed in a solid dark color to control heat absorption and distribution.

The disadvantages heretofore present with the use of similar materials are obviated by the construction of the package of the present invention. That is, the great propensity of metallic foil to tear during handling is greatly reduced or eliminated by the double-folded top margin 22 and the double-folded longitudinal margin 26 yet is advantageously utilized for venting and opening the package. Double-fold top margin 22 has a multilayer thickness of material 48, thus, top margin 22 is tear resistant yet easily vented due to tear notch 34.

The precise alignment of tear notch 34 on longitudinal fold line 59 of longitudinal seal 26 permits advantageous cooperation between top margin 22 and longitudinal margin 26. That is, when top margin 22 is grasped at longitudinal margin 26 for initial venting, longitudinal margin 26 presents as much as 18 layers of material to thereby assure the tearing of a precise vent and tear line. Furthermore, top margin 22 and longitudinal margin 26 form a T-shaped support structure for the package due to their multilayer configurations whereby the material is strengthened in transverse and longitudinal directions to retain its initial shape and to resist tearing and mutilation.

By disposing hole 32 directly under tear notch 34 in alignment with longitudinal fold line 59, top margin 22 is not weakened at a point which could cause inadvertent tearing or imprecise venting and yet the multilayer thickness of top margin 22 with the support of longitudinal margin 26 permits hole 32 to be used for hook or rod storage without danger of damage to the package.

Longitudinal margin 26 need not be centered on rear panel 30 of the package and may be located anywhere on rear panel 30 or on either of the sides of the package.

I claim:

1. A sealed package, for storing food and heating the food by insertion into a toaster, formed of pliable, heat-resistant, tearable, thermally conductive, nonporous sheet material enclosing said food; a sealed top margin for said package, said sealed top margin being folded upon itself to form a top fold line, said folded top margin being of such length as to yield upon unfolding a handling tab which extends out of the toaster; and a tear notch in said folded top margin at a point on said top fold line intermediate the sides of the package whereby the package may be vented by tearing through said folded top margin at said tear notch to divide said folded top margin into two portions and whereby said extended handling tab is formed by unfolding one of the portions to facilitate insertion and removal of the package from the toaster.

2. The package as claimed in claim 1 wherein said package and said folded top margin are formed from a single sheet of

said sheet material having an upper edge, a lower edge and two side edges, said sheet being folded upon itself to form a front panel and a rear panel by aligning said two side edges and causing said upper and lower edges to be folded upon themselves, said lower edge being sealed to form a bottom margin, said upper edge being sealed to form said folded top margin, and said two side edges being sealed to form a longitudinal margin.

3. The package as claimed in claim 1 wherein said sheet material is formed with a sealed longitudinal margin disposed intermediate the sides of the package, said longitudinal margin being folded upon itself and flattened against said package to form a longitudinal fold line along the entire length of the package, and said tear notch is aligned with said longitudinal fold line whereby the package may be accurately vented by tearing through the top margin on said longitudinal fold line and subsequently opened by continuing the tearing through the entire length of the package.

4. The package as claimed in claim 3 wherein said longitudinal margin is flattened against that portion of said top margin that is adapted to be unfolded to present an extended handling tab.

5. The package as claimed in claim 3 wherein a hole is cut through said top margin in alignment with said longitudinal fold line and said tear notch whereby said hole may be used to support the package on a hook or rod without substantially weakening the structure of the package.

6. A method of packaging food in pliable, heat-resistant, tearable, thermally conductive, nonporous sheet material comprising the steps of placing measured portions of food in spaced relation on a strip of the sheet material; folding the strip of sheet material over the portions of food until the side margins of the strip of sheet material meet in inner face to inner face relationship to form a rear panel; sealing the side margins of the strip of sheet material to form a longitudinal margin; folding the longitudinal margin upon itself; flattening the folded longitudinal margin to the rear panel to form a longitudinal fold line; sealing the strip of sheet material in the spaces between food portions; severing the strip of sheet material in the sealed spaces to provide a top margin for a first package and a bottom margin for a second package adjacent to first package; folding the top margin upon itself at least once; and cutting a tear notch in the top margin aligned with said longitudinal fold line.

7. The method as claimed in claim 6 wherein the top margin is folded upon itself twice.

8. The method as claimed in claim 7 including the step of cutting a hole through the top margin in alignment with the tear notch and the longitudinal fold line.

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