

Dec. 17, 1963

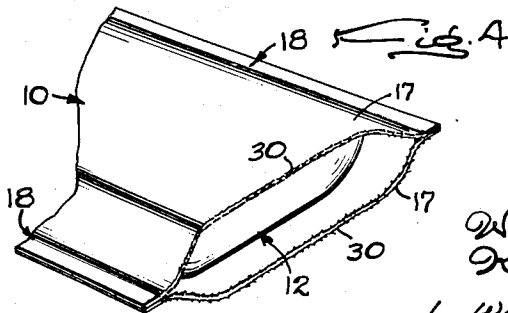
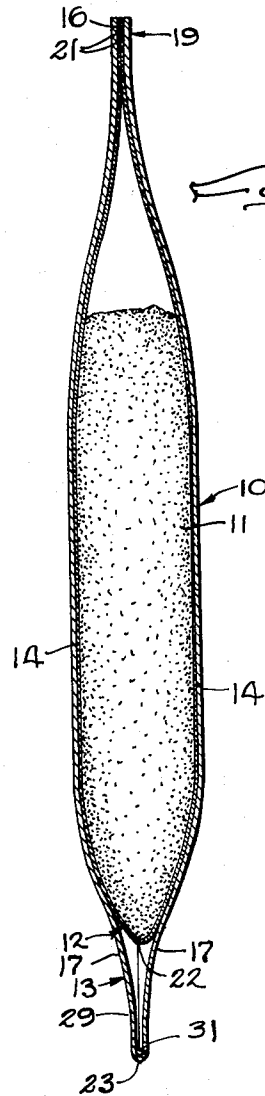
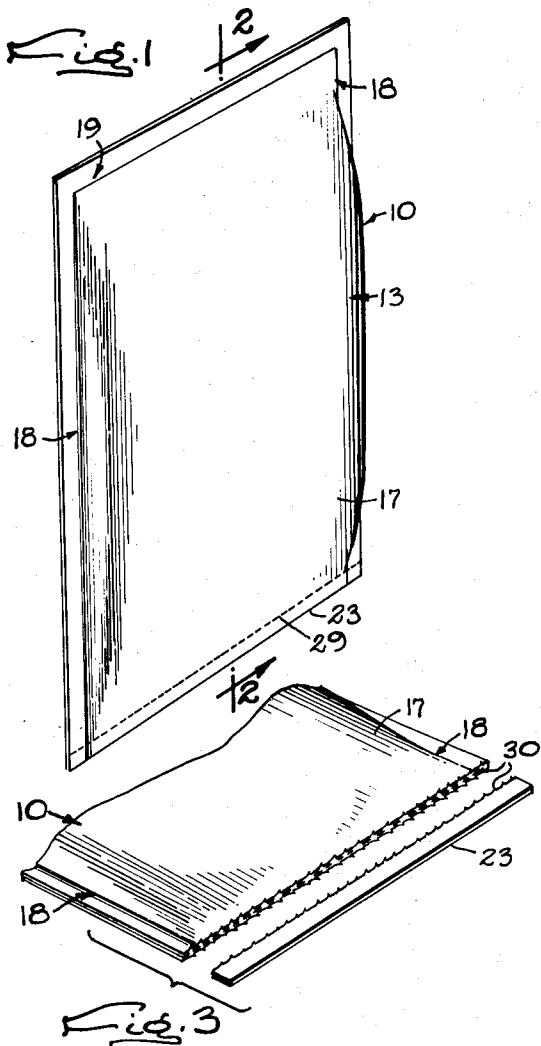
W. T. BOSTON ET AL

3,114,643

FOOD PACKAGE

Filed Nov. 2, 1961

2 Sheets-Sheet 1



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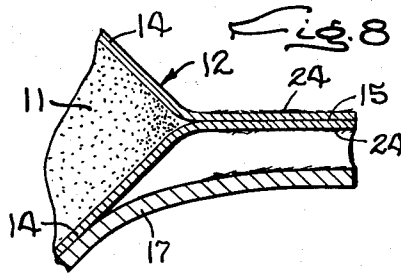
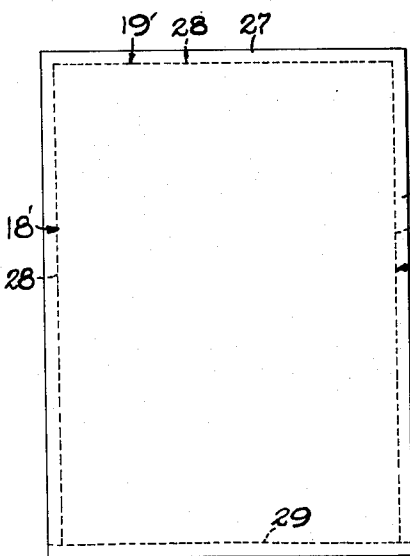
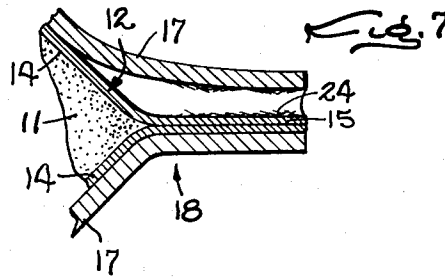
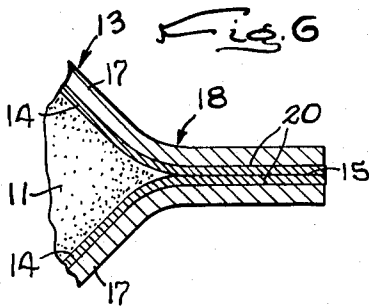
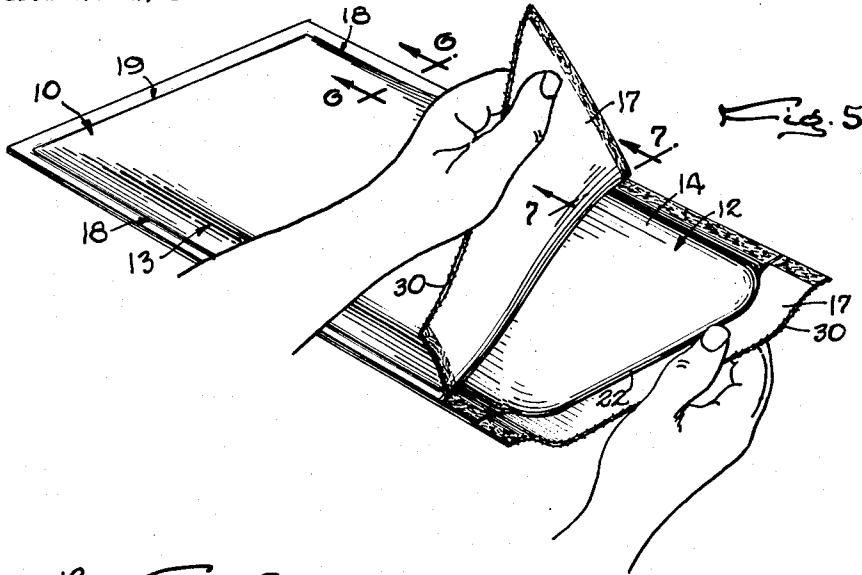


Fig. 9

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3,114,643

**FOOD PACKAGE**

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 Filed Nov. 2, 1961, Ser. No. 149,757  
 5 Claims. (Cl. 99—171)

This invention relates to packages for frozen food and the like, and has for its general object the provision of a new and improved package of the above character which, as compared to prior frozen food packages, is inexpensive to produce and greatly reduces the time and inconvenience involved in opening the package and preparing the contents for serving.

A more detailed object is to provide a relatively inexpensive package which may be opened quickly and easily preparatory to thawing while, at the same time, maintaining the contents in an impervious pouch to facilitate thawing of the contents preparatory to serving.

A further object is to provide a package of the above character in which the pouch is shaped to present a relatively large surface area for contact with a warming medium and has a narrow cross-section thereby to expedite thawing of the contents.

Another object is to provide a package of the above character which may be formed, filled and closed in a straight line operation using high-speed production machinery and relatively inexpensive roll stock.

Other objects and advantages of the invention will become apparent from the following detailed description taken in connection with the accompanying drawings, in which

FIGURE 1 is a perspective view of a food package embodying the novel features of the present invention.

FIG. 2 is a sectional view taken along the line 2—2 of FIG. 1.

FIG. 3 is an exploded fragmentary perspective view of the package shown in FIGS. 1 and 2 and illustrating one step in opening the novel package.

FIG. 4 is a fragmentary perspective view similar to FIG. 3 but showing the package partially opened.

FIG. 5 is a fragmentary perspective view illustrating the next step in opening the package.

FIG. 6 is a fragmentary sectional view taken along the line 6—6 of FIG. 5.

FIG. 7 is a fragmentary sectional view taken along the line 7—7 of FIG. 5.

FIG. 8 is a fragmentary sectional view similar to FIG. 7 but showing a further step in opening the package.

FIG. 9 is a side elevational view of a modified form of the novel package.

As shown in the drawings for purposes of illustration, the invention is embodied in an improved frozen food package 10 which, as compared to prior packages of this type, is inexpensive to produce and greatly reduces the time and inconvenience involved in opening the package and thawing the contents 11 thereof for serving. For these purposes, the food is enclosed in a sealed pouch 12 composed of lightweight flexible material which is impervious to fluids, and the pouch is enclosed in a relatively heavy outer cover 13 capable of protecting the pouch against damage during handling and storage. To facilitate thawing of the contents, the cover is removable from the pouch quickly and easily in a novel manner so that the pouch is preserved intact to serve as a container for the food during thawing, and the pouch is shaped to present a relatively large surface area for contact with a warming medium.

To achieve the foregoing ends, the pouch comprises two coextensive side sheets 14 disposed in face-to-face relation and suitably joined together along corresponding

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margins at one side, the remaining margins being held together by seals 15 (FIGS. 6, 7 and 8) and 16 (FIG. 2) to form a relatively flat, closed container for the food. The cover 13 comprises two panels 17 disposed on opposite sides of the pouch against the outer faces of the sheets and held detachably in place against the sides of the pouch by joints 18 and 19 between the edge portions of the panels and the sealed margins of the pouch, these joints being weaker than the pouch seals 15 and 16 so that the cover panels may be stripped away from the pouch without breaking the pouch seals.

Herein, the two flexible sheets 14 forming the pouch 12 are composed of or at least partially coated with a thermoplastic material which will soften when heated to a predetermined temperature. One of the numerous materials of this type is low density polyethylene film. Using such a material, the pouch margins may be heat sealed together simply by pressing the margins between two seal bars (not shown) at least one of which is heated to the temperature at which the thermoplastic material fuses.

Preferably, the cover panels 17 are composed of a relatively heavy material such as paper board of a composition and thickness selected to fit the intended use of the package and heavy enough to make the cover relatively rigid and protect the pouch against being punctured during handling. Each panel is substantially the same size and shape as the adjacent sheet and, therefore, covers the sheet with the edge portions of the panel overlying the margins of the sheet. Accordingly, heat seals 20 and 21 may be formed between the edge portions of the panels and the heat sealed margins of the sheets to secure the panels in place, these seals constituting part of the joints 18 and 19.

In the present instance, the panels and the sheets are rectangular in shape to form a generally flat rectangular package. While the sheets may be formed separately and then heat sealed together around both sides and both ends, preferably they comprise the opposite edge portions of a single web folded at 22 along its longitudinal centerline to leave the sheets integrally joined along their lower end margins. Similarly, the cover panels may be formed separately and heat sealed together, that is, against the margins of the sheets, around all four edges, but preferably the panels comprise a single band of cover material folded longitudinally at 23 and around the web so that the lower edge portion of each panel extends beyond the fold 22 and is integrally joined to the other panel along the fold.

When the web and the band are held in this position, the heat seals 15 and 20 may be formed simultaneously by pressing the band at spaced intervals along its length between the seal bars, the sheets being fused together along these cross seals and the band being sealed to the sheets to define a plurality of pockets open at one end. The cross seals then are split longitudinally to separate each successive pocket.

To facilitate separation of the sheets 14 at the open end of the pouch to receive the charge 11 of food, each sheet may be heat sealed adjacent the upper end margin thereof to the inner surface of the adjacent panel. Thus, the pouch may be opened for filling merely by spreading the panels. After filling, the upper margins of the sheets are sealed together at 16 to close the pouch and the upper edge portions of the panels are sealed to the pouch at 21. These seals also may be formed in one sealing operation by pressing the upper edge portions of the panels between two seal bars, the seals 21 thus overlying the seals 16 and constituting part of the joint 19. It will be seen that the entire packaging operation may be completed on production equipment using comparatively inexpensive roll stock.

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The joints 18 and 19 may be made weaker than the seals 15 and 16 in various ways. In the preferred embodiment shown in FIGS. 1 through 8, the material used for the panels is intrinsically weaker than the pouch seals so that a thin layer 24 (FIGS. 5, 7 and 8) of the panel material peels away along the seals 20 and 21 as the panels are stripped away from the pouch as illustrated in FIG. 5. Alternatively, the inner surfaces of the panels may be coated, at least along the edge portions, with a thin layer of thermoplastic material such as wax so that the wax forms a relatively weak seal between the panels and the pouch. In either embodiment, the panels may be separated quickly and easily from the pouch without breaking the pouch seals.

A further alternative, illustrated in FIG. 9, is to form side and end joints 18' and 19' with weakened lines along the inner edges of the sealed side and end edge portions 25 and 27. In opening a package having joints made in this manner, the body portions of the panels may be torn away from the sealed edge portions along these lines leaving the edge portions sealed to the margins of the pouch but effectively exposing the sides of the pouch. Such weakening of the panels may be achieved by scoring or perforating the panels along the inner edges of the seals as at 28 (FIG. 9). These perforations preferably are formed in the panels prior to the fabrication of the package to avoid the possibility of puncturing the pouch.

In the present instance, means is provided for rupturing at least one of the panels to facilitate gripping thereof prior to removing the cover. Herein, this means includes perforations 29 across the lower edge of each panel weakening the cover so that the lower edge may be torn off as shown in FIG. 3. In this manner, a free edge 30 of each panel is presented for gripping by the user. Preferably, the lower edge portions of the panels extend a substantial distance beyond the fold 22 in the pouch and the cover is perforated at 29 after the package is formed.

The means for rupturing the cover also may include a tear string 31 disposed between the panels and extending across the bottom of the package, the string being held in place by the seals joining the panels 17. When used in conjunction with the perforations 29, the tear string is secured to the cover beyond the perforations 29, that is, between the perforations and the fold 23. The tear string, therefore, serves as a reinforcing member to insure complete separation of the lower edge of the cover in case the tear should depart from the line of the perforations. It will be evident, however, that in some circumstances either a tear string or perforations alone will constitute sufficient rupturing means.

Assuming that the package contains frozen fruit, for which it is especially well suited, preparation of the fruit for serving may be accomplished in a short time and with a minimum of inconvenience. After the bottom edge of the cover has been torn off and the panels removed, the pouch serves as a container for the fruit during thawing of the latter. Since the pouch is fluid-tight, it may be immersed in a container of warm water to expedite the thawing. Direct contact between the fruit and the water is prevented while, at the same time, heat flows freely to the fruit. Because of the flat shape of the pouch, a relatively large surface area is in contact with the water and, with the narrow cross-section of the pouch, the heat reaches all the fruit in a short time. As a result, thawing requires only a few minutes, a substantially shorter time than has been required with prior frozen fruit packages.

It will be evident that the novel package may be used with other types of food. For example, prepared foods which are to be served hot may be heated in the pouch by immersing the pouch in hot water until the contents reach the serving temperature.

We claim as our invention:

1. A food package comprising two generally rectangular

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sheets of flexible material disposed in face-to-face relation and joined together along the margins at one end, first heat seals joining said sheets together along the side margins thereof and the other end margins to form a closed pouch, a quantity of food in said pouch, two generally rectangular panels disposed on opposite sides of said pouch against the outer faces of said sheets and each having one edge portion extending beyond said one end, said panels being joined together along said edge portions and covering said sheets, joints between said sheets and the body portions of said panels, said joints being weaker than said first heat seals and including second heat seals joining the remaining edge portions of said panels to said sheets along said side margins and said other end margins, and a string extending across and secured to said cover between said extending edge portions whereby said cover is removed by tearing away said extending edge portions and stripping said panels off the pouch.

2. A food package comprising two generally rectangular sheets of flexible material disposed in face-to-face relation and joined together along the margins at one end, first heat seals joining said sheets together along the side margins thereof and the other end margins to form a closed pouch, a quantity of food in said pouch, two generally rectangular panels disposed on opposite sides of said pouch against the outer faces of said sheets and each having one edge portion extending beyond said one end, said panels being joined together along said edge portions and covering said sheets, second heat seals overlying said first heat seals and joining said panels to said sheets along said side margins and said remaining end margins to form a closed cover for said pouch, and means for rupturing at least one of said panels, said panels being composed of a material intrinsically weaker than said first heat seals whereby a layer of said material separates from said panels as the latter are stripped away from said pouch.

3. A food package comprising two generally rectangular sheets of flexible material disposed in face-to-face relation and joined together along the margins at one end, first heat seals joining said sheets together along the side margins and the other end margins thereof to form a closed pouch, a quantity of food in said pouch, two generally rectangular panels disposed on opposite sides of said pouch against the outer faces of said sheets and each having one edge portion extending beyond said one end, said panels being joined together along said edge portions and covering said sheets, second heat seals joining said panels to said sheets along said side margins and along said other end margins to form a cover for said pouch, said second seals overlying said first heat seals, and means weakening said panels along the inner edges of said second heat seals whereby said panels may be stripped quickly and easily from said pouch without rupturing the latter.

4. A food package comprising two generally rectangular sheets of flexible material disposed in face-to-face relation and joined together along the margins at one end, first heat seals joining said sheets together along the side margins thereof and the other end margins to form a closed pouch, a quantity of food in said pouch, two generally rectangular panels disposed on opposite sides of said pouch against the outer faces of said sheets and each having one edge portion extending beyond said one end, said panels being joined together along said edge portions and covering said sheets, and joints between said sheets and the body portions of said panels, said joints being weaker than said first heat seals and including second heat seals joining the remaining edge portions of said panels to said sheets along said side margins and said other end margins whereby said panels may be stripped quickly and easily from said pouch without rupturing the latter.

5. A food package comprising two sheets of flexible material disposed in face-to-face relation and joined together along the margins at one side, first heat seals joining said sheets together along the remaining side margins thereof to form a closed pouch, a quantity of food in said pouch,

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two panels disposed on opposite sides of said pouch against the outer faces of said sheets and each covering one of said sheets, and joints between the heat sealed margins of said sheets and the bodies of said panels, said joints being weaker than said first heat seals and including second heat seals joining the edge portions of said panels to said sheets along the heat sealed margins of the latter whereby said panels may be stripped quickly and easily from said pouch without rupturing the latter.

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