July 22, 1958 J. F. BARNES ET AL 2,844,475

DISPOSABLE PRESSURE COOKER PACKAGE OF FROZEN FOOD

Filed Jan. 4, 1955

Fig. 1

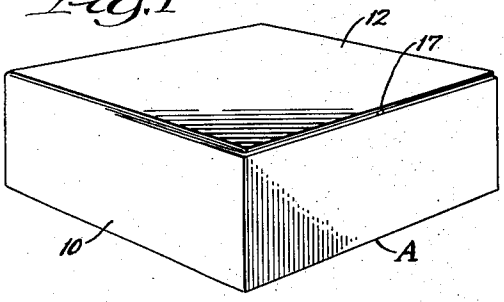


Fig. 2

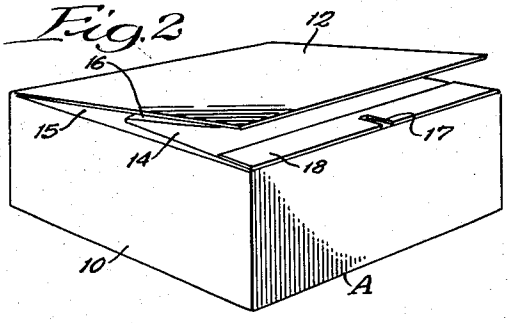


Fig. 3

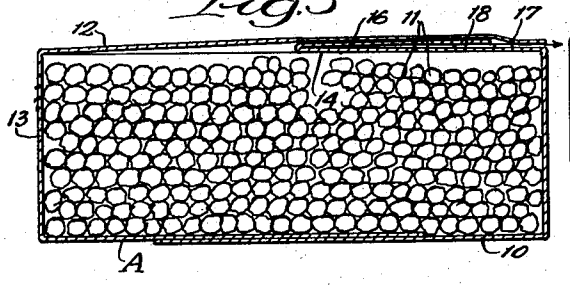


Fig. 4

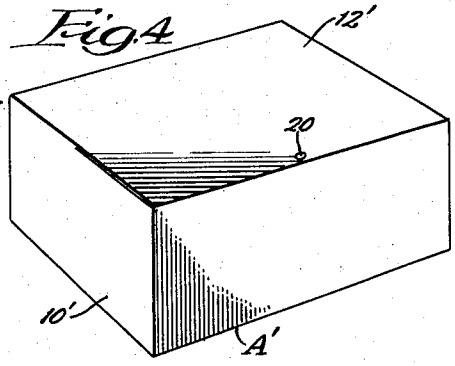


Fig. 5

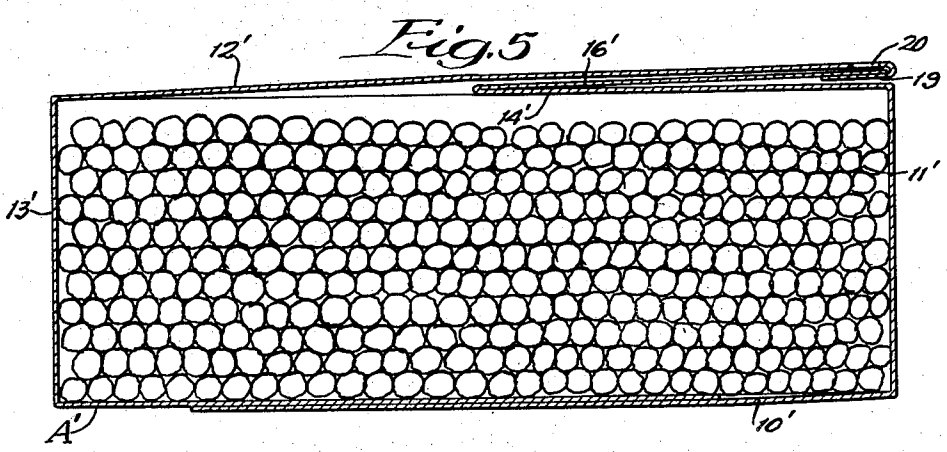
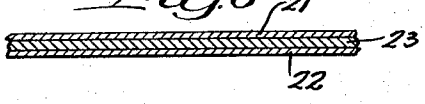


Fig. 6



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DISPOSABLE PRESSURE COOKER PACKAGE OF FROZEN FOOD

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3 Claims. (Cl. 99—192)

This invention relates to a disposable pressure cooker and package which is particularly adapted for the packaging and cooking of frozen food products which are commonly cooked in water after removal from their package. The present invention, however, permits such frozen foods to be cooked without removal from the package in which they are commercially distributed.

It is a general object of this invention to provide a disposable pressure cooker and package for the packaging and cooking of frozen food products. More specifically, it is an object to provide a package of the character described wherein the frozen food product can be cooked without removal from the package, and preferably without opening the package prior to cooking. Still another object is to provide means for cooking a frozen food product within a flexible container by the use of controlled steam pressure. In this connection, it is a further object to provide means in the package structure for controlling the steam pressure so as to obtain an adequate pressure for accelerating the cooking of the food product within the confined space of the package, while at the same time preventing the steam pressure from building up to such a point that the package is broken. Further objects and advantages will appear as the specification proceeds.

This invention is shown in an illustrative embodiment in the accompanying drawing, in which—

Fig. 1 is a perspective view showing the exterior of a complete package formed in accordance with the present invention; Fig. 2, a perspective view similar to Fig. 1, showing the same package with the closure flap partially lifted to better illustrate the construction of the package; Fig. 3, a side sectional view of the package of Figs. 1 and 2; Fig. 4, a modified package construction shown in perspective from the exterior; Fig. 5, a side sectional view of the modified package of Fig. 4; and Fig. 6, an enlarged fragmentary sectional view of the sheet material forming the containers of the package embodiments of Figs. 1 to 3 and Figs. 4 and 5.

Looking first at Figs. 1 to 3, there is shown a package A comprising a box **10** formed of a metal foil sheet material. Within box **10**, as shown more clearly in Fig. 3, there is provided a frozen food product **11**, which is arranged to substantially fill the lower portion of box **10**. The frozen food product **11** should be of the type which requires heating in the presence of water for the preparation thereof, such as frozen fresh vegetables. Also, it is important that the frozen food product should contain sufficient water for cooking the food product by the generation of steam within container **10**. Therefore, if the food material itself does not contain sufficient moisture, water should be added thereto at the time it is introduced into the container **10** and frozen therein. The food product as illustrated in Fig. 3 is intended to be fresh frozen peas.

As shown more clearly in Figs. 2 and 3, box **10** has its upper portion folded upon itself to provide a flat, smooth top **12**, which can be used for the attachment of labels, or can have advertising material printed directly

thereon. In the illustration given, top **12** is formed by the upper portion of the rear wall **13** of container **10**, being folded downwardly along the upper rear edge of the box and extending substantially to the opposite upper edge thereof. Thus, top **12** is without joints or cracks to distort advertising.

Preferably as shown in the drawing, the upper portion of box **10** is collapsed onto the lower portion thereof, and the collapsed upper portion of the box has a straight outer wall providing the top **12** of the package. Beneath top **12** there is also provided by the upper portion of container **10**, three folded walls, being front folded wall portion **14** and folded side wall portions **15**. These folded walls extend inwardly beneath top **12** and have upper portions providing surfaces lying adjacent the bottom surface of top **12**, such as the upper surface **16** of folded front portion **14**.

The construction of the upper portion of box **10** has been described in detail and the relation of the various sections thereof have been brought out because they are important in achieving the desired control of steam pressure within the container during the cooking operation. Specifically, it has been found to be highly advantageous to provide a steam escape route from the interior of box **10** which is expandable with increasing steam pressure within the box. In the embodiment of Figs. 1 to 3, this is accomplished by allowing the steam to escape between the bottom surface of top **12** and the upper surface **16** of front folded portion **14** until it escapes through a port **17** at the front edge of the container.

In the illustration given, as shown more clearly in Figs. 2 and 3, an adhesive strip **18** extends across the outermost portion of front fold **14** beneath the outer end of top **12**. Strip **18** contains a pressure-sensitive adhesive material on both sides thereof, so that it effectively closes and seals container **10**, except for the port **17** which is provided by a cut out section or channel at the center of strip **18**. Thus, when the package of Figs. 1 to 3 is placed within a container of boiling water, steam is generated within container **10** under controlled pressure for the cooking of the food product therein. As the steam pressure increases, the upper surface **16** of flap **14** will be forced away from the undersurface of top **12**, thereby expanding the passage or escape route of the steam to port **17**. If this enlargement of the escape passage for the steam is not enough to sufficiently limit the steam pressure within the package, port **17** will be enlarged by the area of top **12** adjacent thereto being released from engagement with strip **18** due to the pressure-sensitive adhesive thereon.

The embodiment of Figs. 4 and 5 is similar to that of Figs. 1 to 3, and therefore the corresponding parts have been given the same numbers except that the numbers have been primed. The package A' contains a frozen food product **11'** within box **10'** which has a rear wall **13'** and a top **12'** as in the embodiment of Figs. 1 to 3. The principal difference is that the outer end of top **12'** is provided with an extension **19** which is folded over the outer free edge portion of flap **14'** and is adhesively attached thereto with a permanent-type adhesive rather than a pressure-sensitive adhesive. Also, top **12'** at the center of its outer edge portion is provided with a steam escape port **20** which communicates with the interior of box **10'** in substantially the same way as port **17** in the embodiment of Figs. 1 to 3. Specifically, the passage provided between the lower surface of top **12'** and upper surface **16'** of front fold **14'** functions as an expansible steam escape route.

The preferred aluminum foil sheet material for constructing containers **10** and **10'** is shown in Fig. 6. It consists of two thin sheets of aluminum foil **21** and **22** with a heat resistant adhesive material **23** positioned therebetween, and forming with sheets **21** and **22** a heat

resistant aluminum foil laminate. Epoxy resin adhesives have been found to be well adapted for forming the intermediate layer 23 of the aluminum foil laminate.

While in the foregoing specification this invention has been described with relation to specific embodiments thereof, it will be apparent to those skilled in the art that the invention is susceptible to other embodiments and that certain of the details set forth herein can be varied considerably without departing from the basic principles of the invention.

We claim:

1. A disposable pressure cooker and package, comprising a box formed of metal foil sheet material, and a frozen food product therein containing water for cooking said product, the upper portion of said box being folded downwardly along one edge of said box and extending substantially to the opposite edge thereof, and a steam outlet port in said box adjacent said opposite edge and communicating with the interior of said box through said downwardly-folded box portion, said box being closed except for said steam outlet port.

2. A disposable pressure cooker and package, comprising a box formed of aluminum foil sheet material, and a frozen food product substantially filling the lower portion of said box and containing sufficient water for cooking said food product under steam pressure, the upper portion of said box being collapsed onto the lower portion thereof, the collapsed upper portion of said box having an outer wall providing the top of the package and folded inner walls, the top surfaces of said folded inner walls lying adjacent the bottom surface of said outer wall, said box also providing a steam escape port positioned in the upper portion thereof to communicate with the interior of said box along an expansible passage provided between the bottom surface of said outer wall and the

upper surface of one of said folded inner walls, said box being closed except for said steam escape port.

3. A disposable pressure cooker and package, comprising a box formed of aluminum foil sheet material, and a frozen food product substantially filling the lower portion of said box, said food product requiring cooking in water and containing sufficient water for cooking it under steam pressure, the upper portion of said box being collapsed onto said food product with the upper portion of the box side walls and the upper portion of the box front walls extending inwardly in folds and the upper portion of the box rear wall overlying said folds and forming a flat top for the package, the upper portion of the front wall fold and the adjacent overlying portion of the box rear wall forming a restricted passage therebetween terminating in a steam escape port, said box being closed except for said steam escape port, said restricted passage communicating with the interior of said box and being expansible in proportion to the steam pressure within said box.

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