

Feb. 7, 1961

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2,970,735

FOOD CONTAINER FOR FREEZING AND HEATING

Filed May 10, 1954

3 Sheets-Sheet 1

FIG-1-

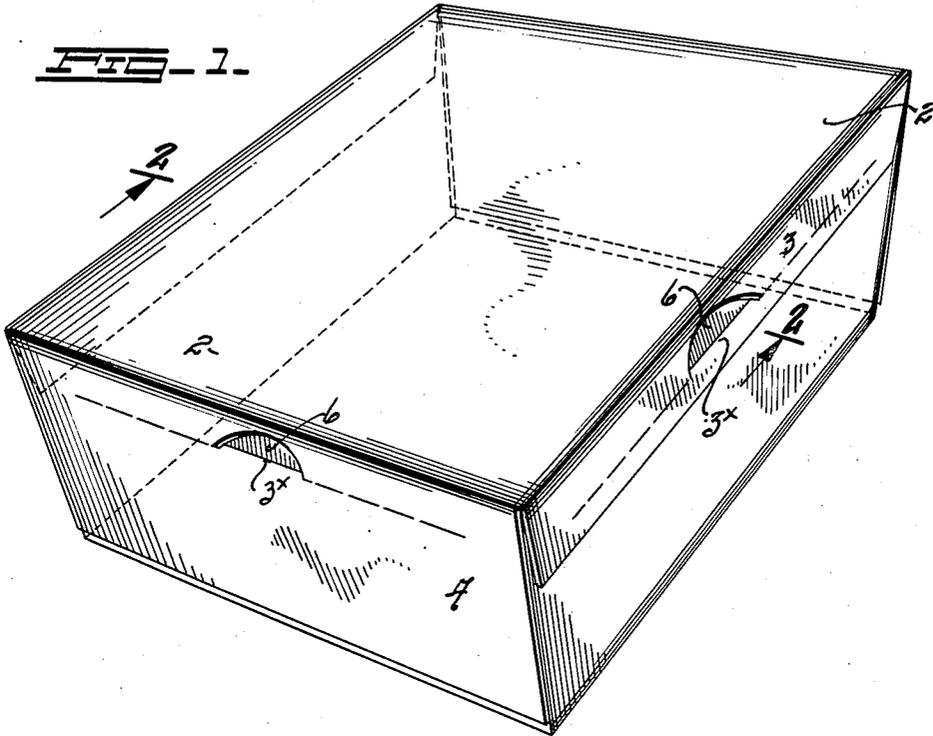


FIG-2-

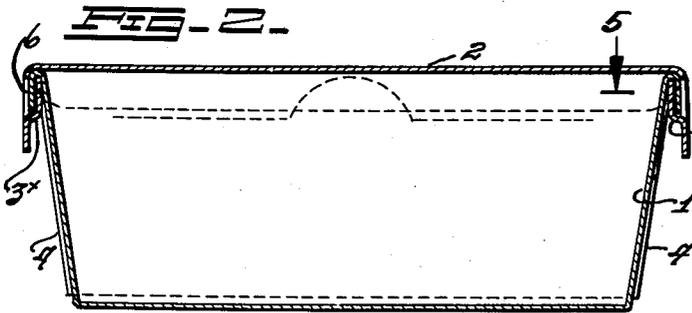


FIG-4-

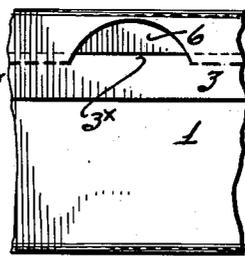
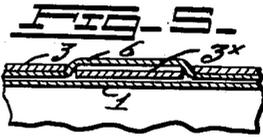
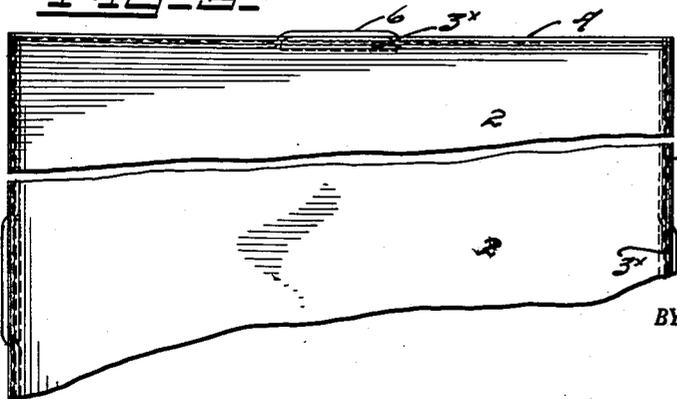


FIG-3-



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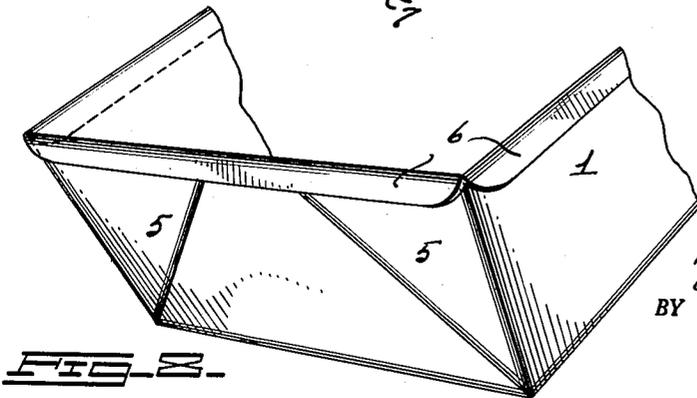
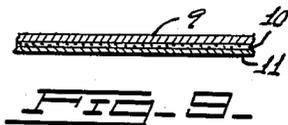
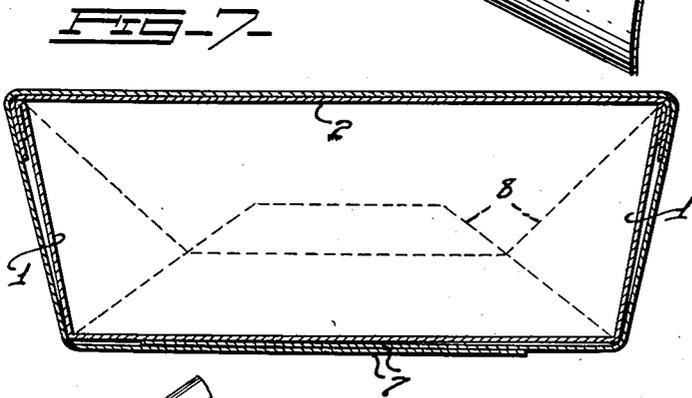
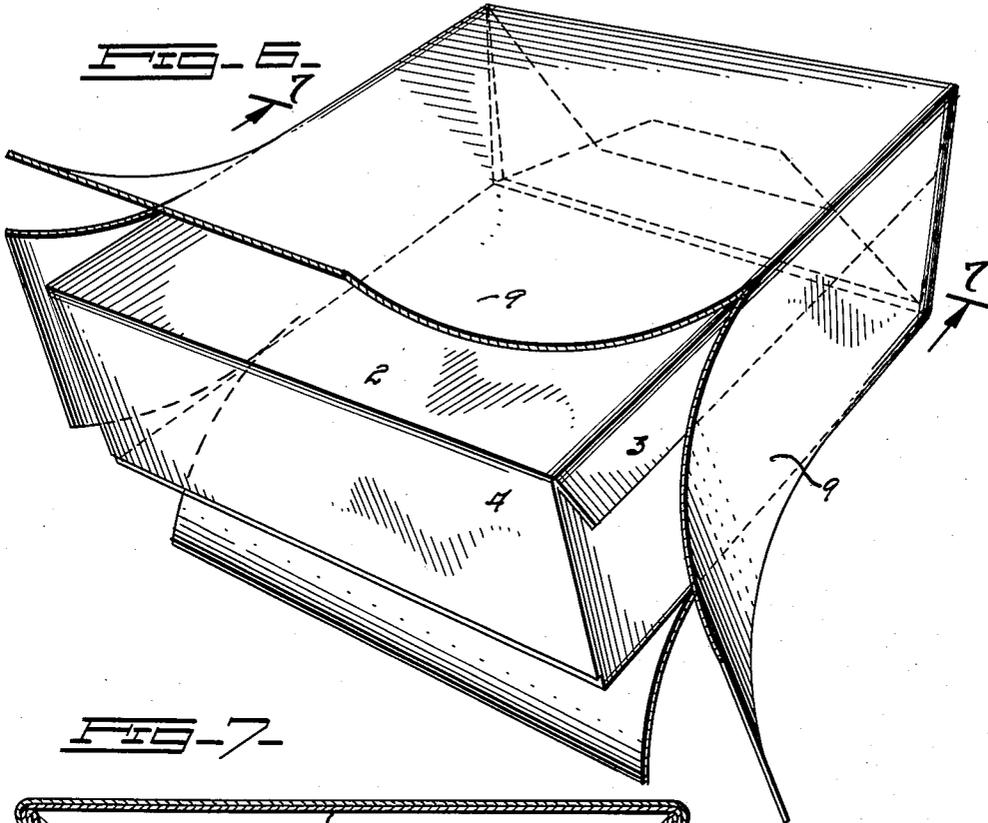
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FOOD CONTAINER FOR FREEZING AND HEATING

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FIG. 10.

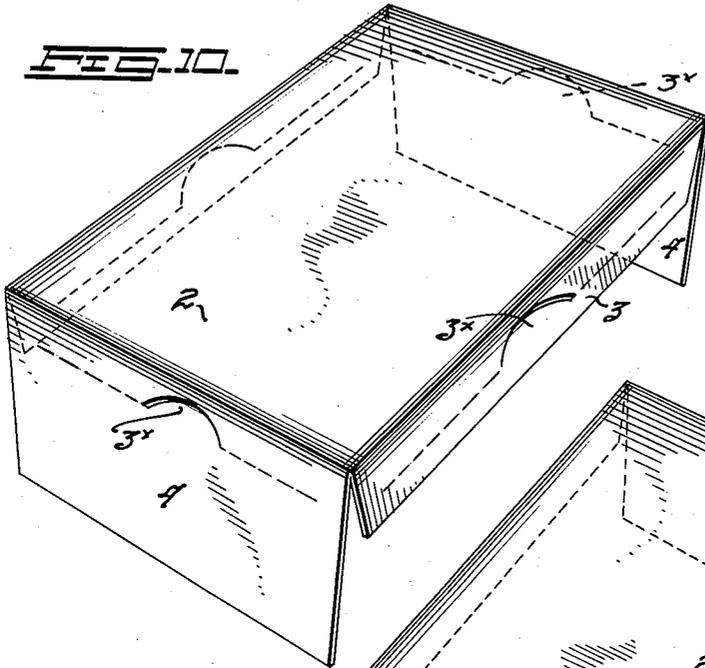


FIG. 14.

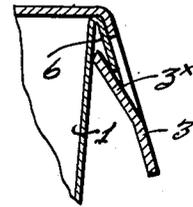


FIG. 11.

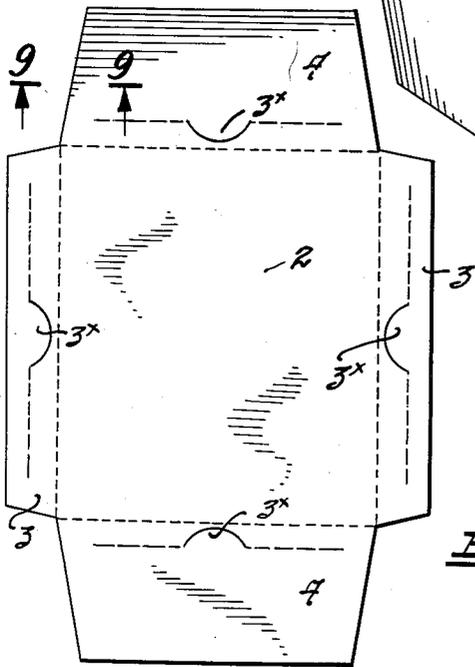


FIG. 12.

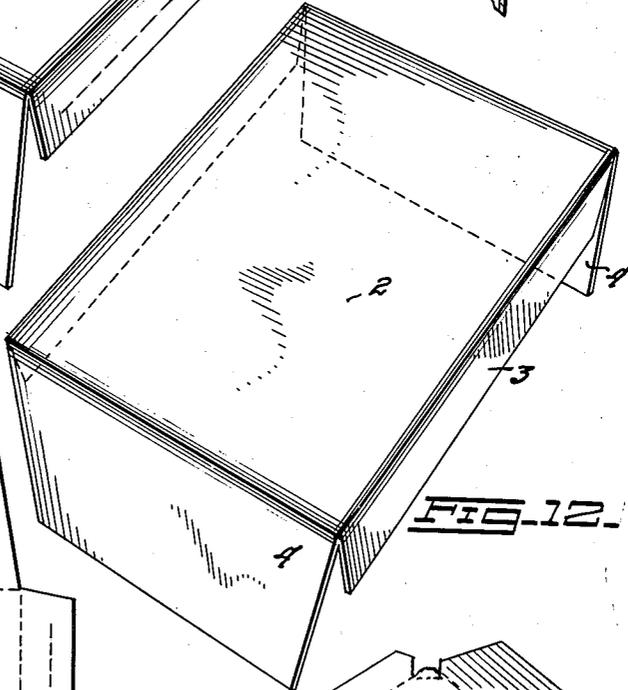
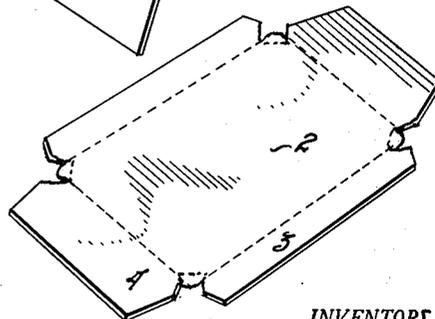


FIG. 13.



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**FOOD CONTAINER FOR FREEZING AND HEATING**

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1 Claim. (Cl. 229—3.5)

The present invention has for a primary object to provide a package by means of which foodstuffs may be packed, frozen, shipped and reheated, even by fluid reheating, so that the food may remain in the package from the time of packing and processing up to the moment of serving the same for use. Many attempts have been made to provide a package having the said general utility. It may be stated, however, that where such packages have filled certain of the needs, they have been objectionable because of either undue cost or failure in one or more respects during actual use, such defects being overcome by the present invention.

The invention is characterized by the provision of an aluminum leakproof major body or tray of such form that it may be made of foil and yet have adequate rigidity, a die-cut flange lid for the normally open top of the tray, and finally a special heat sealing overwrap which binds the lid to the tray and effectively hermetically seals the package. The lid is of such form as to enable reinforcement of the foil tray at marginal folded edges or a "bead," by protecting the overwrap therefrom and enabling a smooth outer wrap wall throughout the package. The lid formation supplies substantial reinforcement to the package, rigidity about a flat hard surface for the normally open top of the tray to withstand stacking, and it supplies the proper surface contact with the foods, all effectively and at low cost.

The invention will be described with reference to the accompanying drawings, in which:

Fig. 1 is a perspective view of an embodiment prior to application of the overwrap;

Fig. 2 is a transverse sectional elevation on the line 2—2, Fig. 1;

Fig. 3 is a fragmentary top plan of the structure shown in Fig. 1 partly in dotted lines;

Fig. 4 is a fragmentary elevation centrally of one side of the structure shown in Fig. 1;

Fig. 5 is a horizontal section on the line 5—5, Fig. 2;

Fig. 6 is a schematic broken away view showing the overwrap partly torn away, the view being in perspective, and the lid being the same as shown in Fig. 12;

Fig. 7 is a transverse section on the line 7—7, Fig. 6;

Fig. 8 is a fragmentary end view of the foil tray;

Fig. 9 is a section through a suitable form of heat sealing overwrap;

Fig. 10 is a perspective view of the lid employed in Figs. 1 to 5 inclusive;

Fig. 11 is a plan view of the lid of Fig. 10;

Fig. 12 is an isometric view of a modified form of lid;

Fig. 13 is a perspective view of the blank from which the lid of Fig. 12 is made; and

Fig. 14 is a schematic view in section showing the manner in which the locking tabs of the structure shown in Fig. 10 interlock with the marginal flange of the foil tray.

Referring to the drawings, the all metal leakproof tray is indicated at 1 and an embodiment is best shown in the fragmentary view, Fig. 8, that view showing the sides and

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one end wall, the opposite end wall being of the same formation in said embodiment. This is the preferred type of metal tray, and it will be seen that its upper margins are folded down to form a reinforcement and for the purpose described. The tray is preferably made of aluminum foil into which the foods may be directly packed without imparting any odor or affecting the taste of the foods.

The flanged lid may be formed of the die cut blank shown in Fig. 11, in which the blank 2 is formed with side flanges 3 and longer end flanges 4. Each flange is scored outwardly of a slit which centrally thereof extends upwardly into an arc portion so that a latching finger at 3x is provided.

In the form of the tray shown in Fig. 8, the latter is made from a single blank of foil, preferably aluminum foil, so formed on a mandrel that the corner folds are pressed inwardly upon the end walls, these folds, shown at 5, lying under the upper marginal flanges 6 of the tray. Therefore the longer flanges 4 of the lid will, when the lid is pressed in position, lie over the fold flanges 6 and the folds 5 to provide a smooth wall, as shown more particularly in Fig. 1. At the same time, the latching fingers 3x are bent inwardly and pushed up under the appropriate tray flanges 6 to securely latch the lid to the tray after the tray is packed with food. However, in some cases it will be unnecessary to employ the latching fingers, and such modification is shown in Figs. 6 and 12, the blank being shown in Fig. 13.

Particularly when the trays have rounded corners, but applicable to squared corner trays also, the lid may at its corner areas be provided with a unique corner cut which tends to follow the curve of the tray edge. This saves wrapping and avoids the danger of corner punctures of the wrapper during application of the latter and in the handling of the food package, as shown in Fig. 13.

The lid may be made of any suitable material and an excellent lid construction when the overwrap package is used for precooked frozen foods and employed by the consumer as a reheat container is the use of a cardboard sheet with an all metal surface facing the foods, and of course both surfaces may be so faced, aluminum foil being the preferred facing material.

In the embodiment shown, the trays have diagonal walls of progressively lowered area toward their bottoms so that, before packing the trays with foods, they may be nested during shipping and handling, this nesting protecting the trays against easy damage, because, being made of foil, they are light and require reasonable protection in handling prior to being filled, lid-protected and overwrapped.

The lid functions in several ways: it is simple to apply, it covers the metal edges and corners which otherwise might cut or tear the overwrap, it contains and protects the foodstuffs within the tray, it gives the top of the package a flat hard surface and a quality of puncture resistance, it adds substantially to the package rigidity, and furnishes smooth end panels for tight sealing of the overwrap when the tray is of folded foil in the manner shown in Fig. 8.

The overwrap is a heat sealing sheet preferably composed of an outer sheet of foil, an inner facing of porous tissue and an intermediate layer of a wax compound, such as a mixture of paraffin and micro-crystalline wax, this intermediate layer being of sufficient volume to act as a sealing medium, upon the application of heat pressure, by passing through the pores of the porous tissue at the laps of the folds and bonding said laps together.

On application of the overwrap, its longitudinal margins as at 7, Fig. 7, may be lapped at the bottom of the package and the projecting ends successively folded in-

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ward and lapped as indicated by the dotted lines 8, Fig. 7, thereupon. These folds may be produced by high speed wrapping machines employed along with heated shoes which iron the folds and heat seal them.

It will be understood that for clarity of illustration, in Figs. 3 and 5, the areas of the tray flanges overlying the latching lip 6 of the lid are shown brought outwardly from the side of the tray, whereas in actual practice the outer surface of the assembly will be substantially flat.

In initial use the tray may be packed with one or more foodstuffs as an example, the lid applied, the overwrap applied and sealed, whereupon a rigid, although inexpensive, composite package of foodstuffs is provided, which package is hermetically sealed. Foodstuff then can be frozen, although foodstuff can be pre-frozen, if desired. Thereupon, the package can be transported in frozen condition and subjected to heat at the point of consumption. Dehydration is prevented because of the hermetical sealing by the overwrap, and when the contents are to be served the overwrap can be torn away and the lid removed.

It will be understood that the overwrap may be printed with legends and/or pictorial matter indicating the contents and the source thereof. If desired, the lid also may be so printed. In Fig. 9, the foil sheet of the overwrap is indicated at 9, the wax composition layer at 10, and the porous tissue layer at 11.

It will also be understood that, while the package is of particular utility in the handling of frozen foods and for both freezing and heating for consumption, it is adapted for other purposes.

It will also be understood that various modifications may be made in the form and arrangement of the elements illustrated in the drawings without departing from the spirit of the invention.

Having described our invention, what we claim and desire to secure by Letters Patent is as follows:

In a foodstuff enclosure for frozen foods and the like, an integral open top aluminum foil tray having side

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and end walls, the metal being folded at each corner to form reinforcing opposed inwardly directed double wall areas of triangular form at said corners, the folds lying against walls of the container and the tray being further folded downwardly at its top margin of each wall to form reinforcing flanges, said flanges being free for outward movement, a rigid lid member having a major flat wall resting on said flanged areas and having a downwardly extending flap at each edge of said rectangular flat wall overlying corresponding walls of said tray, and an impervious heat sealable overwrap covering and sealing said tray and lid, said overwrap consisting of an outer layer of aluminum foil, an intermediate layer of heat sealing plastic composition, and an inner layer of foraminous tissue immediately adjacent to the surfaces of the tray and lid, said inner layer of tissue releasably engaging said adjacent tray surfaces for instant removal therefrom, and said foil hermetically sealing the interior of said tray.

References Cited in the file of this patent

UNITED STATES PATENTS

305,710	Patton	Sept. 23, 1884
1,818,266	Miner	Aug. 11, 1931
1,833,304	Putt	Nov. 24, 1931
2,932,804	Risk	Oct. 31, 1933
1,973,391	Reynolds et al.	Sept. 11, 1934
2,121,667	Kittredge et al.	June 21, 1938
2,226,155	Bjornson	Dec. 24, 1940
2,298,146	Mersbach	Oct. 6, 1942
2,346,685	Hothersall	Apr. 18, 1944
2,373,730	Williamson et al.	Apr. 17, 1945
2,441,477	Farrell	May 11, 1948
2,669,914	Swaine	Feb. 23, 1954
2,673,806	Colman	Mar. 30, 1954

FOREIGN PATENTS

509,998	France	Aug. 28, 1920
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