Jan. 17, 1956 R. A. FARRELL 2,731,190

REFRIGERATOR CARTON

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Fig. 1.

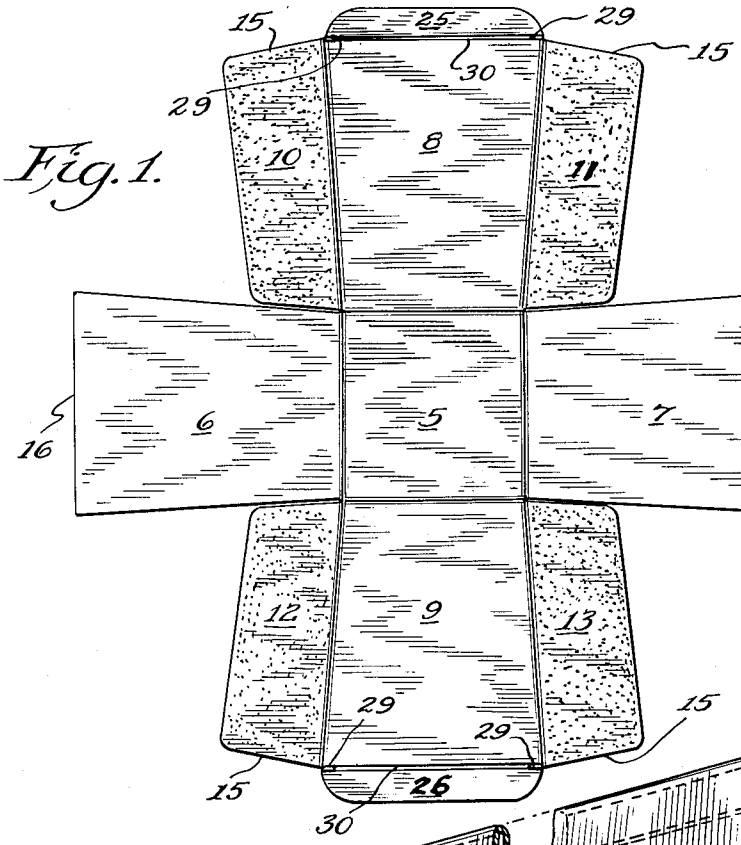


Fig. 2.

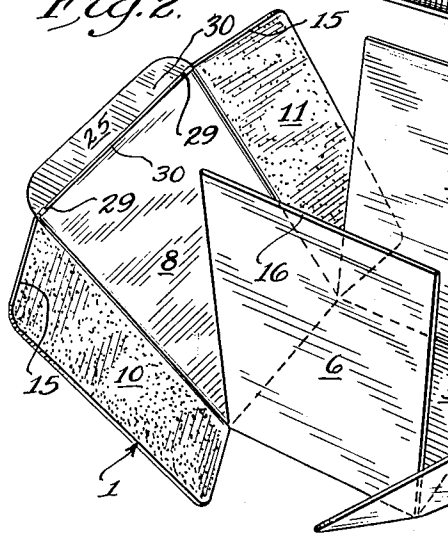
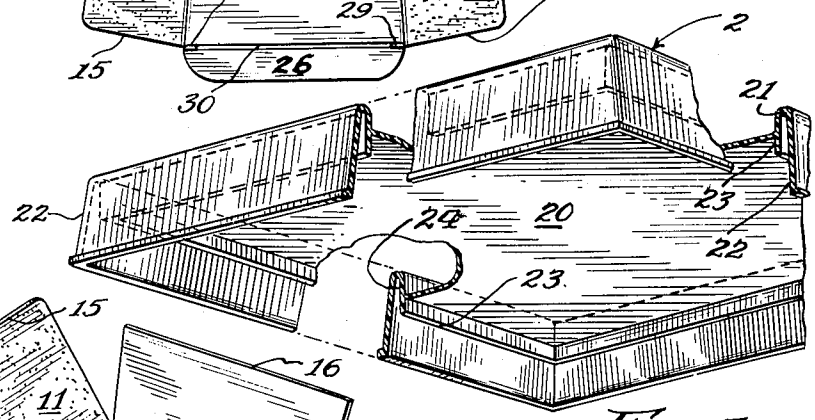


Fig. 4.



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Fig. 3.

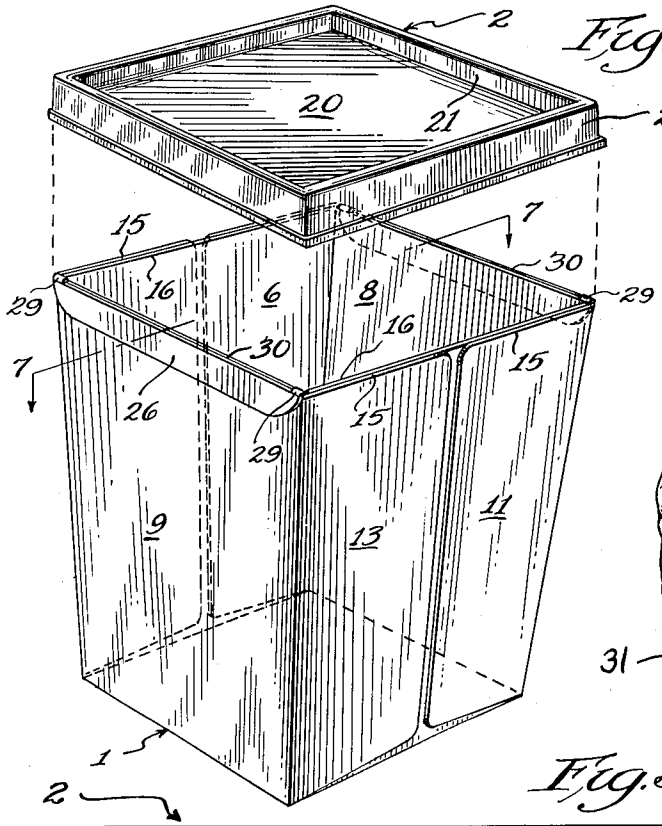


Fig. 6.

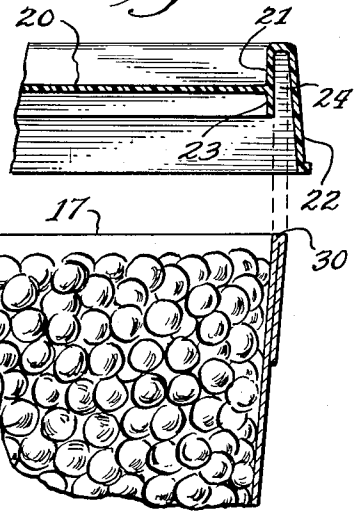


Fig. 5.

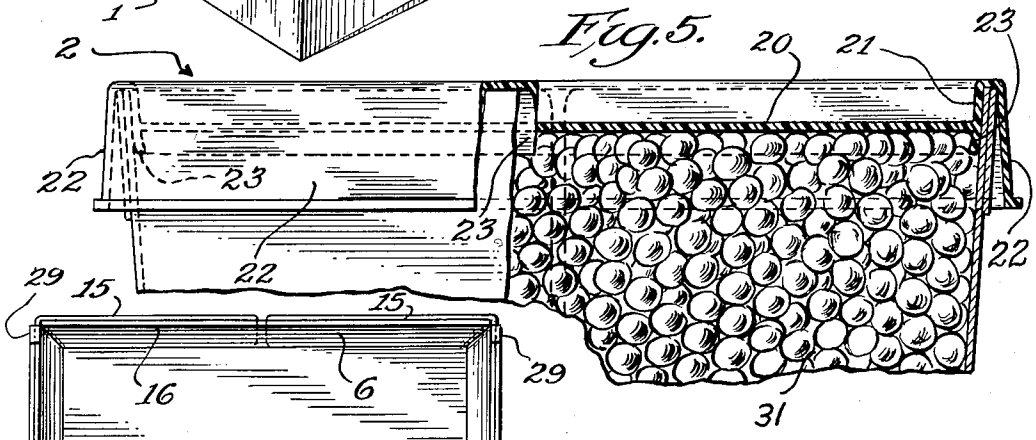
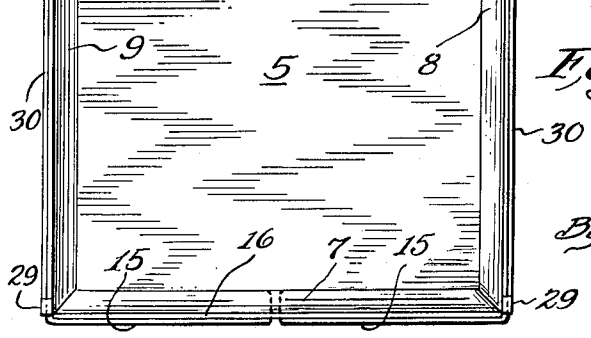


Fig. 7.



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REFRIGERATOR CARTON

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Application November 5, 1951, Serial No. 254,824

1 Claim. (Cl. 229—32)

This invention relates to a leakproof container and more particularly to a container having a separable flexible cover which tightly fits the container to prevent leakage of liquids.

The growth of home freezing of foods has created a need for a low cost carton which can be used for packaging foods to be frozen in home freezers. Plastic containers comprising a receptacle portion and a cover which fits the container sufficiently well to be liquid-tight have been used for this purpose. However, these plastic containers are expensive and must therefore be reused by cleaning and sterilizing.

An object of this invention is to provide a container suitable for home freezing having a disposable receptacle portion. It is a further object to provide such a container with a paperboard bottom receptacle for use with a plastic cover and which is so designed as to make possible a leakproof fit between the receptacle and the cover. Other objects and advantages will be apparent from the following description.

In the drawings, Figure 1 is a plan view of a paperboard blank from which the receptacle portion is formed,

Figure 2 is a perspective view showing the relative position of the parts of the receptacle just prior to forming,

Figure 3 is a perspective view showing the completely erected receptacle and a cover for same in unassembled condition,

Figure 4 is a fragmentary perspective view of the cover with parts broken away,

Figure 5 is an enlarged fragmentary side elevation of the filled receptacle with the plastic cover assembled and with parts broken away,

Figure 6 is an enlarged sectional fragmental view of the filled container showing the cover removed, and

Figure 7 is a plan view of the open receptacle portion taken on line 7—7 of Figure 3.

The receptacle portion 1 is made preferably of a tapered carton capable of nesting with other like cartons. It is formed from a paperboard blank suitably cut and scored to form a bottom wall 5 and opposed pairs of side walls 6 and 7, and 8 and 9, connected to the bottom wall by suitable score lines. Glue flaps 10 and 11, and glue flaps 12 and 13 are connected respectively to each side of opposed side walls 8 and 9. In making the carton from the blank, the side walls 6 and 7 are first folded upright and then side walls 8 and 9 are folded up and glue flaps 10 and 11, and 12 and 13 are folded to overlie walls 6 and 7 and are adhered thereto. The glue flaps are dimensioned so as to overlie substantially the entire side walls 6 and 7. The overlying glue flaps 10 and 11 have their top edges 15 terminate and coincide with the top edges 16 of side walls 6 and 7, thereby providing continuous even edges of two-ply thickness on the two opposite sides 6 and 7. Flaps 25 and 26 are separated from walls 8 and 9 respectively, by a complete cut score 30 extending substantially the entire length of the flaps and are connected at their ends only by very small hinges or uncut portions 29 (see Figure 1). Flaps 25 and 26

are folded back upon the outside face of the walls 8 and 9, respectively, and are glued or adhered thereto, thus providing the top edges of two-ply thickness throughout. By so separating the flaps 25 and 26 their free exposed top edges are flat or squared, as shown in Figures 3 and 6, and are aligned with and continuous with the top free edges 16 of the opposed side walls 6 and 7 and the top edges 15 of the overlapped glued flaps 10 and 11, and 12 and 13. If the flaps 25 and 26 were merely folded over along a plain uncut score line in the conventional manner, the top edges would be rounded and thus there would still be a directional problem when the cover is applied. A conventional cut score of cutting partially through the board cannot be used as the male component of the cutting and creasing die corresponds to the outside of the cut blank. The hinges of uncut portions 29 are only of sufficient length to hold the flaps 25 and 26 in place during the folding and gluing of the receptacle portion. This minimum size is such that the hinges tend to fracture on folding, forming in effect a continuation of the cut portion 30, hence, they do not substantially alter or impair the flat contour of the top edges of sides 8 and 9.

The carton construction as described is accordingly provided at the top with a continuous square and aligned free edge of uniform wall thickness and an adjacent subtending continuous inner wall surface. This upper edge and inner subtending surface can therefore be sealed by a suitable conforming cover dimensioned so as to make continuous sealing contact with the continuous free upper edge and adjacent subtending inner wall surface of the carton.

Flaps 25 and 26 have the additional function of strengthening the walls 8 and 9, thereby reducing the tendency of these walls to bulge excessively when the carton is filled. If walls 8 and 9 were not so reinforced the excessive bulge would impair the fit of the cover. Furthermore, by so reinforcing walls 8 and 9, lower caliber board may be used in constructing the carton with the attending economic advantages.

The cover 2 for the receptacle portion 1 is preferably made of flexible plastic material, such as polyethylene. It consists of a top wall 20 which is recessed to provide inner side wall 21 to which is connected a depending skirt or flange 22. An inner skirt or flange 23 is also provided which is a continuation of the inner side wall 21 and extends below the top wall 20. Skirt 22 and wall 21 and flange 23 form a U-shaped channel 24 adapted to embrace and frictionally receive the top edges of the carton 1.

In use, the carton is filled with a product, such as peas 31, and the flexible cover 2 is fitted over the top edges of the carton 1 without regard to the direction of the cover with respect to the carton bottom. The inside wall 21 and skirt 23 of the cover are preferably normal to the top wall 20 and hence when the cover is in place the flange 23 flexes and conforms to the sloping side walls of the receptacle portion 1 and is therefore slightly deformed (see Figure 5), thus giving a tight seal and ensuring a liquid-tight fit between the inside surface of the carton wall and the inside walls of the cover. The cover 2 is so dimensioned that the top edges of the carton 1 are adapted to be snugly received in the bite of the U-shaped channel 24. The skirt 22 is flared outwardly to facilitate the entrance of the top edges into the U-shaped channel 24 producing a wedging or confining effect on the carton side walls as the cover is seated on the top edges of carton 1. This confinement or wedging causes skirt 23 to flex inwardly and compress in face contact against tapered inside walls of carton 1, as shown in Figure 5, forming a liquid-tight seal.

The cover 2 is formed of relatively thin flexible material so that it can be readily flexed when closing the

carton. The dimensions of the cover and the channel portion **24** are predetermined for a given carton so that the upper edges of the carton will be snugly received in the channel. The cover is frictionally retained on the carton and can be readily removed and replaced whenever desired. The flexibility of the cover, especially at the region of the channel **24**, ensures compensation for any slight irregularities in the contour, dimensions or thickness of the free top edges of the carton so that a liquid-tight seal is assured at all times when the cover is applied thereto and slight downward pressure is applied on the cover so as to bring flanges **22** and **23** into frictional and tight engagement with the top upper open end of the carton.

It is to be understood that the invention is not restricted to the specific illustrative embodiment herein described. The receptacle portion may be of any other suitable construction or material provided the top edge portion is of continuous uniform thickness for snugly engaging a flexible cover. It is not essential that the upper free edge of the carton receptacle should be square provided that the upper portion is of uniform thickness at the open end. The receptacle portion, for example, may be provided with hinged flaps at the upper edge of each wall portion which are folded over and adhered to the adjacent outer face of the walls to provide uniform thickness at the open end. The carton may also be made of a single-ply thickness throughout and strips adhered at the upper perimeter so as to have an upper free end of uniform thickness.

Accordingly, modifications and variations of the present invention embodying the essential principles thereof are intended to be included within the scope of the appended claim.

I claim:

A leak-proof container comprising a downwardly inwardly tapered paper receptacle portion and a flexible cover therefor, said receptacle portion being formed from a single folded paperboard blank suitably cut and scored to provide a bottom wall, opposed pairs of side walls connected to said bottom wall, one opposed pair of side walls having glue flaps connected along each side edge and overlying and adhered to said other pair of side walls, the flaps on each side wall of such one pair being together of dimension to extend adjacent the top edge of the wall to which they are adhered substantially across the entire width of such wall and being of dimension insufficient to overlap each other adjacent such top edge, whereby the top edge of said receptacle portion is of two ply thickness on the two sides thereof including said other pair of side walls, and a pair of second flaps each at its ends hingedly connected to the top edge of one of said one pair of side walls, said second flaps except for the hinge connections at their ends being separated from the walls to which they are hinged by a cut line and being folded over and adhered to the outer surface of the walls to which they are hinged adjacent the top edge thereof whereby the side walls of the receptacle portion adjacent the top edge present throughout the periphery thereof a two ply thickness and the top edge of the receptacle portion presents a substantially flat surface, said cover being provided with an inverted channel for receiving the uniform-thickness continuous top edge of the receptacle portion, the inner wall of said channel being untapered and vertical in attitude and having a continuous, vertical, flexible flange portion depending therefrom, said depending flexible flange portion continuously contacting the subtending continuous inner wall surface of said receptacle portion in sealing relation, the interior base of said channel being of dimension substantially equal to the thickness of the top edge of the receptacle portion to snugly embrace and engage said top edge to provide a liquid tight seal between the cover and the receptacle portion.

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