

Feb. 26, 1946.

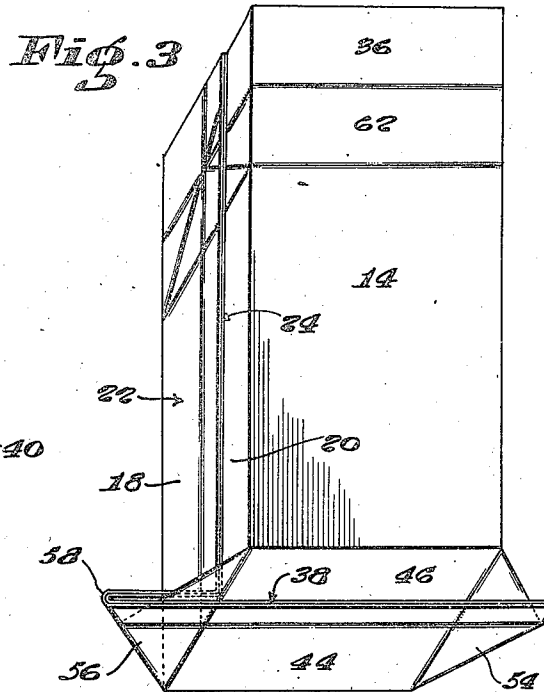
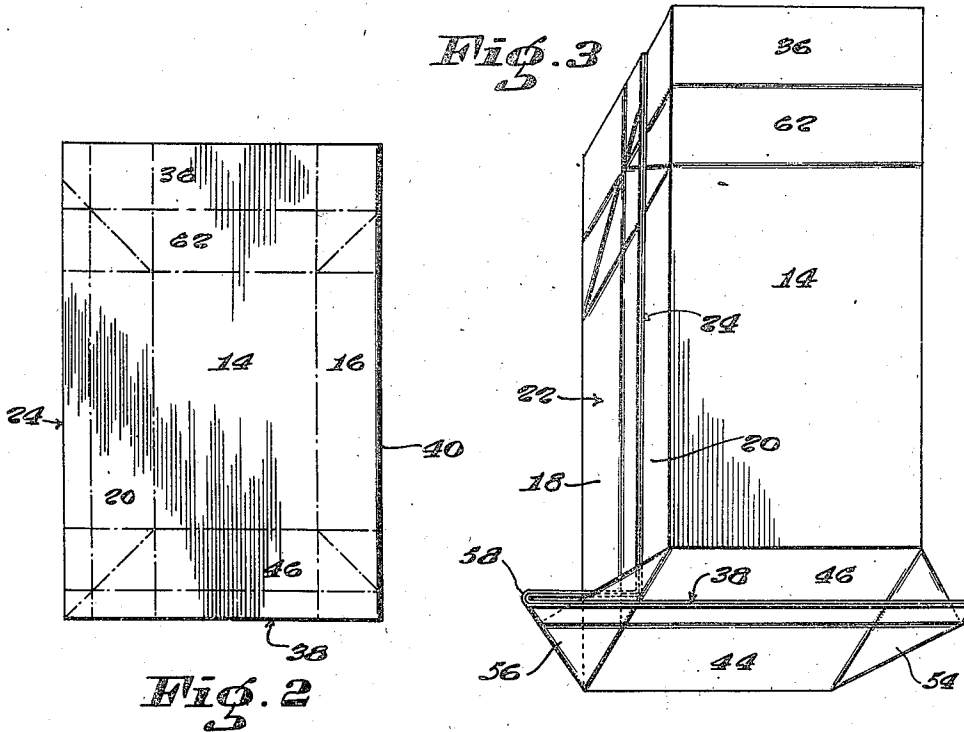
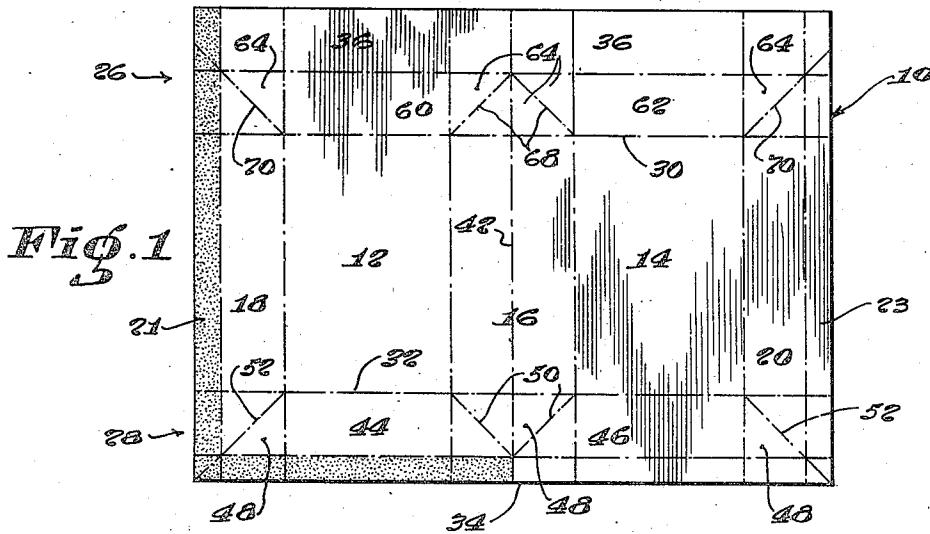
S. R. HOWARD

2,395,663

CARTON

Filed Oct. 9, 1943

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

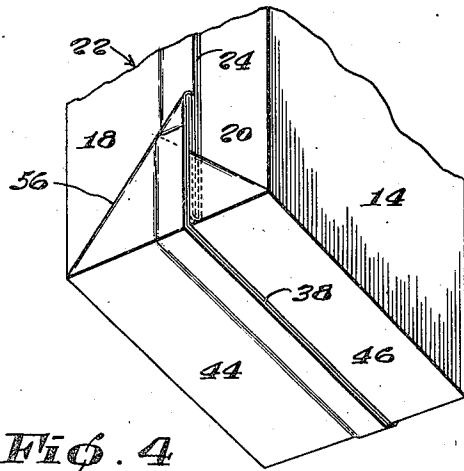


Fig. 4

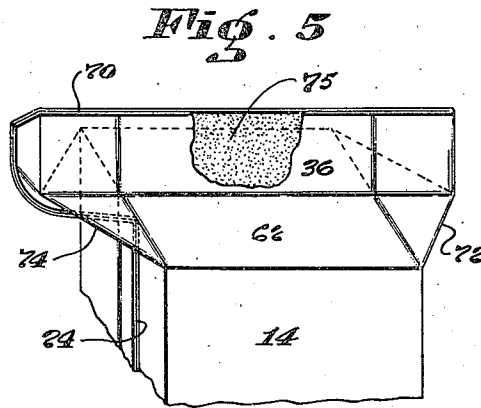


Fig. 5

Fig. 6

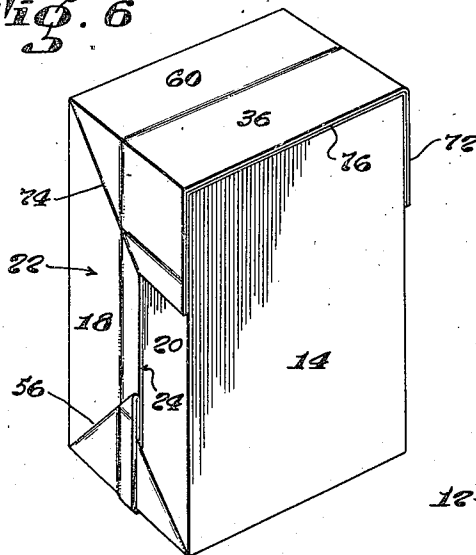


Fig. 7

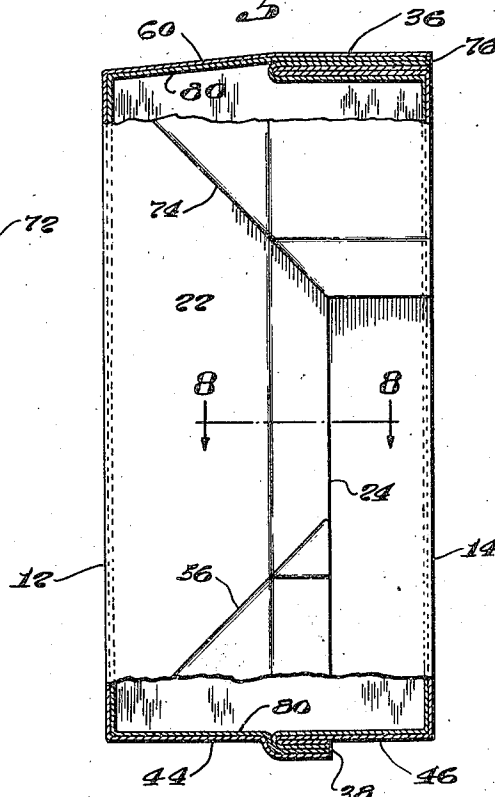
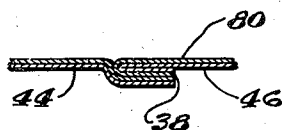


Fig. 8



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2,395,663

CARTON

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4 Claims. (Cl. 229—37)

This invention relates to a carton.

The invention has for an object to provide a novel and improved construction of carton or package in which all the closing seams of the carton are closed and sealed in a novel manner to form a relatively rigid carton adapted to be hermetically sealed and which provides a practical construction of carton for use in the packaging of dehydrated foods.

With these general objects in view and such others as may hereinafter appear, the invention consists in the novel carton hereinafter described and particularly defined in the claims at the end of this specification.

In the drawings illustrating the preferred embodiment of the invention, Fig. 1 shows a blank from which the present carton may be formed; Fig. 2 is a view of the blank folded once and sealed along two marginal edges to form a flat carton with one end open; Figs. 3 and 4 are perspective views showing the carton opened to rectangular form and illustrating successive steps in the folding of the bottom of the carton; Fig. 5 is a perspective view showing the preferred form of top closure of the carton; Fig. 6 is a perspective view representing the finished or completed carton; Fig. 7 is a side elevation showing the top and bottom closures in cross section; and Fig. 8 is a detail in cross section taken on the line 8—8 of Fig. 7.

In general, the present invention contemplates a construction of carton adapted to be closed and sealed in a novel and improved manner and which may be used with advantage in the packaging of dehydrated foods. In the various prior forms of cartons of which I am aware having the usual four end sealing flaps to be closed and sealed to form the end closures of the carton it has been extremely difficult or impossible to obtain an air-tight seal because of leakage between the flaps and corners of such cartons. This is particularly true of the top closure where the sealing pressure is limited by the spring of the carton board so that a relatively inefficient seal has resulted.

In accordance with the present invention all of the closing seams of the carton comprise projecting face-to-face sealing seams or so-called "fin seals" which may be sealed by the application of substantial pressure to provide a tight seam to be produced. In the preferred embodiment of the invention the cardboard blank is scored to provide a body portion comprising side and end wall panels and to provide for elongated end folds.

The carton blank is also preferably provided

with scored lines along the marginal edges of the blank to provide sealing seams adapted to be sealed face to face and in the illustrated embodiment of the invention the carton is provided with a central scored line to permit the blank to be folded once upon itself and sealed face to face along two marginal edges to form a flat carton open at the top, closed on one side by the folded edge, and sealed along the bottom and side edges. The carton in this condition may then be opened up into rectangular form, the bottom folded to provide a flat and rectangular end, and the projecting seam portions and outwardly extended folded portions may be folded flat against the carton. This structure of carton enables the cartons to be stored, on the flat, and fed and opened in existing carton feeding machinery.

After the carton is filled, the top closure may be made by folding opposed side walls of the scored mouth portions inwardly and at the same time urging opposed end walls of the mouth outwardly to form an elongated fold having an upstanding projecting seam and outwardly extended triangular flaps, the upstanding seam extending across the mouth of the carton and across the extended flaps. The upstanding seam portions are adhesively sealed together face to face to form a fin seal joining the side seam previously made when the carton was in its flat condition, thus forming a continuous projecting seam extending around the edges of the carton. The upstanding seam portion of the top closure and the extended flap portions may then be folded down upon the carton to form the completed package.

While for some purposes the carton board, in its natural state, sealed with the usual liquid adhesive, provides sufficient protection for some types of foods or materials to be packaged, in the preferred and illustrated embodiment of the invention at least the inner surface of the carton may and preferably will be provided with a moisture-resisting and air-tight coating to enable the production of an hermetically sealed package particularly adapted for use in the packaging of dehydrated foods. Such a coating may comprise a thermoplastic, heat-setting or fusible material whereby to permit the seams of the carton to be sealed by the application of heat and pressure. The package thus produced may be vacuumized or gassed in any usual or preferred manner as may be required for the preservation of the food or material being packaged. It will also be understood that the present carton may be used to advantage in the production of other types of packages such as lined or wrapped packages or

may be exteriorly treated to render both the body and seams thereof moisture-proof or air-tight, such as by dipping or coating the carton with wax or paraffin. In some instances, the marginal edges only may be provided with adhesive which may preferably comprise a heat and pressure-responsive sealing material.

Referring now to the drawings, 10 represents a carton blank suitable for forming the package of the present invention and which may comprise a sheet of carton board stock of sufficient thickness and rigidity to be scored. As illustrated in Fig. 1, the carton blank is preferably scored to provide the side wall panels 12, 14, the end wall panel 16, and half panel portions 18, 20 arranged to be joined to form the opposing end wall panel 22. Each half panel portion 18, 20 is provided with a marginal seam forming panel 21, 23 respectively extending the full length of the blank, arranged to be adhesively united face to face to form a projecting side seam 24 disposed centrally of the end wall panel 22.

The end closing portions 26, 28 of the carton blank, disposed above and below the scored lines 30, 32 respectively, defining the body portion of the carton, are preferably scored as illustrated to permit the ends to be folded flat upon opening of the carton into rectangular form, and, as herein shown, the marginal edges of the end folding panels are likewise provided with contiguous seam forming panels comprising a bottom closing seam forming panel 34 and a top closing seam forming panel 36 forming a continuation of the side seam forming panels 21, 23 whereby to permit a continuous face-to-face seal to be made about the marginal edges of the entire carton.

As illustrated in Fig. 1, in the construction of the present carton one of the side seam forming panels 21 and one half of the bottom seam panel 34 may be provided with adhesive and the blank may then be folded once upon itself as illustrated in Fig. 2 to adhesively seal the bottom and one side of the carton, forming a bottom seam 38, and the side seam 24, the opposite side being closed by the folded edge 40 and the top or mouth portion of the carton being open. In order to facilitate folding of the carton blank upon itself a centrally disposed scored line 42 may be provided which passes through the middle of the end panel 16 and extends the full length of the blank as shown in Fig. 1. As thus assembled, with the carton in its flat condition, it will be apparent that substantial pressure may be applied against the closing seams 24, 38 whereby to provide efficient seals upon the side and bottom of the carton. In practice, the cartons may and preferably will be stored and shipped in their flat condition, to be opened and formed into rectangular shape when ready for use.

The carton may be opened up into rectangular form as illustrated in Fig. 3 either manually or by suitable automatic machinery and in practice is preferably placed upon a mandrel or forming block to fold and close the bottom of the carton in the manner illustrated in Figs. 3 and 4. As therein shown, upon opening of the carton into rectangular form the opposed side flaps or panels 44, 46 of the bottom folding portion 28 are folded inwardly, each extending halfway across the end of the carton, and, at the same time the triangular scored end flaps or panels 48 are folded outwardly as shown along scored lines 50, 52 so as to form the triangular shaped, horizontally extended tabs 54, 56. At the same time, the projecting seam portions 24, 38 are folded flat

against the side and bottom of the carton, as shown in Fig. 2, the bottom seam 38 extending across the bottom of the carton and across the triangular folded tabs 54, 56, and, the side seam 24 extending the full length of the carton and across the top of the horizontally extended tab 56 joining the bottom seam at the apex 58 of the triangular tab. It will be observed that the seam portions 24, 38 must be folded down in the same direction, as shown, to form a continuous unbroken seam along the side and bottom of the carton when working with the relatively heavy carton board from which the present container is formed.

The horizontally extended tabs 54, 56 may then be folded against either the end wall panels 16, 22, as illustrated, or they may be folded against the bottom of the carton if desired, and, in either event, it may be found desirable to adhesively secure the folded down tabs to the adjacent surfaces of the carton.

From the description thus far it will be observed that the carton blank is provided with a continuous face-to-face seal along the bottom and side of the blank and the carton is then formed into rectangular shape with the bottom of the carton folded to provide a rectangular container having an open mouth. The carton thus prepared may be filled with the commodity to be packaged. Referring now to Fig. 5, the top closure for the present carton is formed by folding inwardly the opposed side flaps or panels 60, 62 of the top folding portion 26, each panel extending halfway across the mouth of the carton, and at the same time folding outwardly the triangular scored end flaps or panels 64 along score lines 66, 70 so as to form the triangular shaped horizontally extended tabs 72, 74. During the top closing operation, the top closing seam panels 36 are preferably retained in an upstanding face-to-face position as shown in Fig. 5, the projecting seam portions extending across the mouth of the carton and across the horizontally extended triangular tabs. The top closing panels 36 may be provided with a suitable adhesive as indicated at 76 and pressed together face to face to form a projecting seam 78 joining the side seam 24 at the point indicated at 78 to form a continuous fin seal about the bottom, one side and the top of the package. The upper portion of the side seam 24 extends across the bottom of the triangular tab 74 taking a natural curve about the apex and then extending vertically adjacent the edge of the upstanding seam 78. With this construction of top closure it will be apparent that substantial pressure may be applied to set the adhesive seam 78 to form an efficient seal.

The upstanding seam portion 78 may then be folded down flat against the top of the carton, preferably in the same direction as the side and bottom seams, and, as illustrated in Fig. 6, it will be observed that the panels 36 forming the seam 78 are of such a width as to extend across the top of the carton when folded down so as to form a flat top. The horizontally extended tabs 72, 74 may then be folded and adhesively secured against the side wall panels as illustrated in Fig. 6, to complete the package.

Referring now to Fig. 7, as therein shown, in some instance it may be desired to provide the inner surfaces of the carton board with a coating of any usual or preferred heat sealing adhesive, as indicated at 80, which coating may and preferably will be of a moisture-resisting compo-

sition and also such as to render the carton airtight so that when the carton is sealed along the fin seams by the application of heat and pressure an hermetically sealed container is provided suitable for use in the packaging of dehydrated foods. The heat sealing coating may be provided at the marginal edges only of the carton blank where the nature of the material being packaged is such as to be suitably protected by the carton board in its natural state.

From the above description it will be observed that the present construction of carton enables a relatively rigid container to be produced having a marginal closing seam of the "fin" type to permit the package to be tightly and most efficiently sealed, affording maximum protection for the commodity being packaged. It will be apparent that the present carton may be provided with a lining or a wrapper if desired, or it may be externally treated to further waterproof it and to protect the contents of the package. It will also be observed that the present hermetically sealed carton may be air evacuated or provided with an inert gas whereby to further protect the contents of the carton from deterioration.

While the preferred embodiment of the invention has been herein illustrated and described it will be understood that the invention may be embodied in other forms within the scope of the following claims.

Having thus described the invention, what is claimed is:

1. As a new article of manufacture, a package comprising a carton filled and closed, said carton being made from a rectangular blank of board stock scored to provide body panels, end closing panels foldably connected to said body panels, and seam forming panels extending along the entire marginal edge of said blank capable of forming a continuous integral face to face seam along the top, bottom and side of the carton, each of said foldably connected end closures being formed by folding one pair of opposed closing panels inwardly and the other pair of opposed panels outwardly to form outwardly projecting tabs, the adjacent face to face seams extending across the ends of the carton and across the extended tabs, said seams being folded flat against the carton and said extended tabs being folded against the body of the carton.

2. As a new article of manufacture, a package comprising a carton filled and closed, said carton being made from a rectangular blank of board stock scored to provide body panels, end closing panels foldably connected to said body panels,

and seam forming panels extending along the entire marginal edge of said blank capable of forming a continuous integral face to face seam along the top, bottom and side of the carton, each of said foldably connected end closures being formed by folding one pair of opposed closing panels inwardly and the other pair of opposed panels outwardly to form outwardly projecting tabs, the adjacent face to face seams extending across the ends of the carton and across the extended tabs, said seams being folded flat against the carton and said extended tabs being folded against the body of the carton, the seam forming panels adjacent one end of the carton being of a width such as to extend to the adjacent edge of the carton to provide a flat end surface.

3. A carton blank of board stock scored to provide body panels, end closing panels foldably connected to said body panels, and seam forming panels extending along the entire marginal edge of said blank capable of forming a continuous integral face to face seam along the top, bottom and side of the carton when folded once upon itself along a scored line passing through one of said body panels, one pair of opposed end closing panels being provided with diagonally scored lines extending across said marginal seam forming panels whereby to permit closing of the ends of the carton by folding said one pair of opposed end closing panels outwardly and the other pair inwardly to form outwardly projecting tabs with the adjacent face to face seams extending across the ends of the carton and across the extended tabs and with all of said seams being folded in the same direction flat against the carton, and with said extended tabs being folded against the body of the carton.

4. A carton blank of board stock scored to provide body panels, end closing panels foldably connected to said body panels, and seam forming panels extending along the entire marginal edge of said blank capable of forming a continuous integral face to face seam along the top, bottom and side of the carton, one pair of opposed end closing panels being provided with diagonally scored lines whereby to permit closing of the ends of the carton by folding said one pair of opposed panels outwardly and the other pair of opposed end closing panels inwardly to form outwardly projecting tabs with the adjacent face to face seams extending across the ends of the carton and across the extended tabs, and with said seams and extended tabs folded against the body of the carton.

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