

Sept. 6, 1949.

H. V. ANDERSON, SR

2,481,380

PACKAGE

Filed July 4, 1945

2 Sheets-Sheet 1

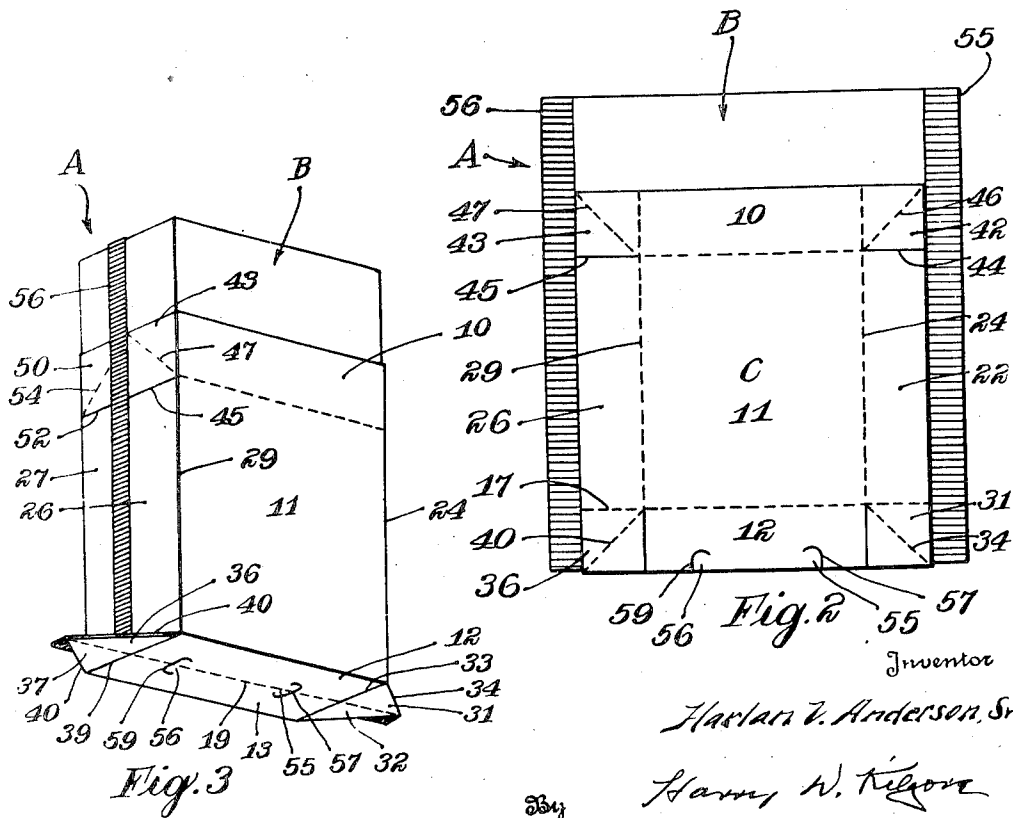
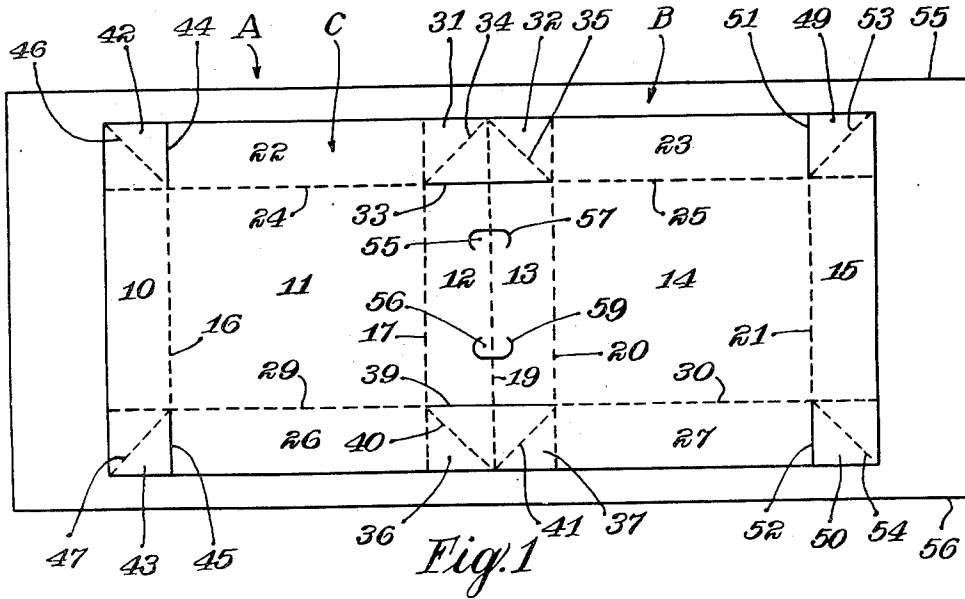


Fig. 3

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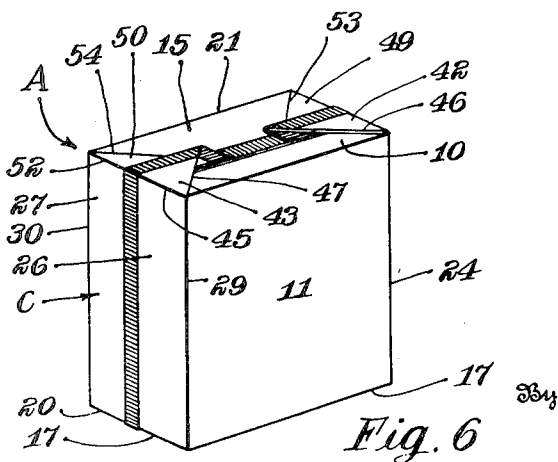
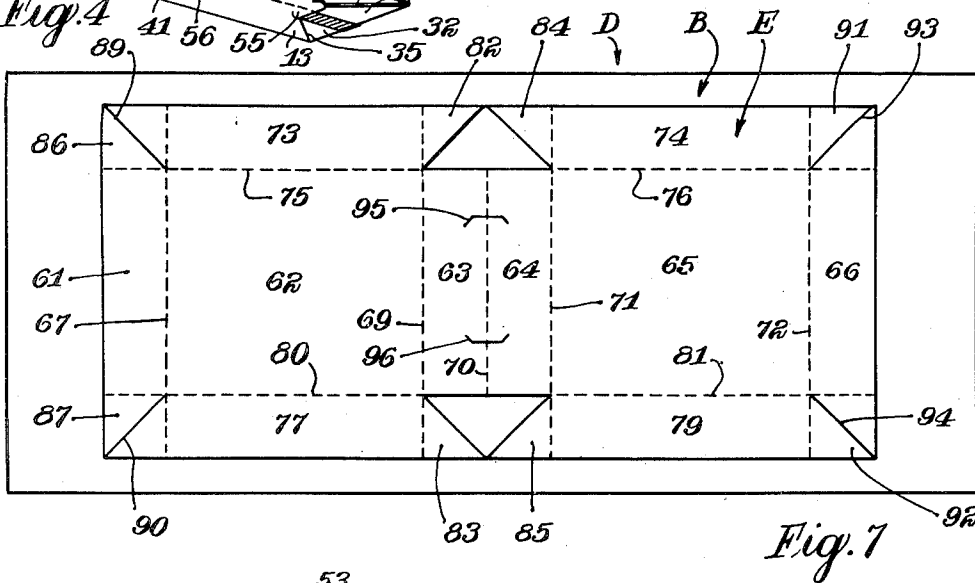
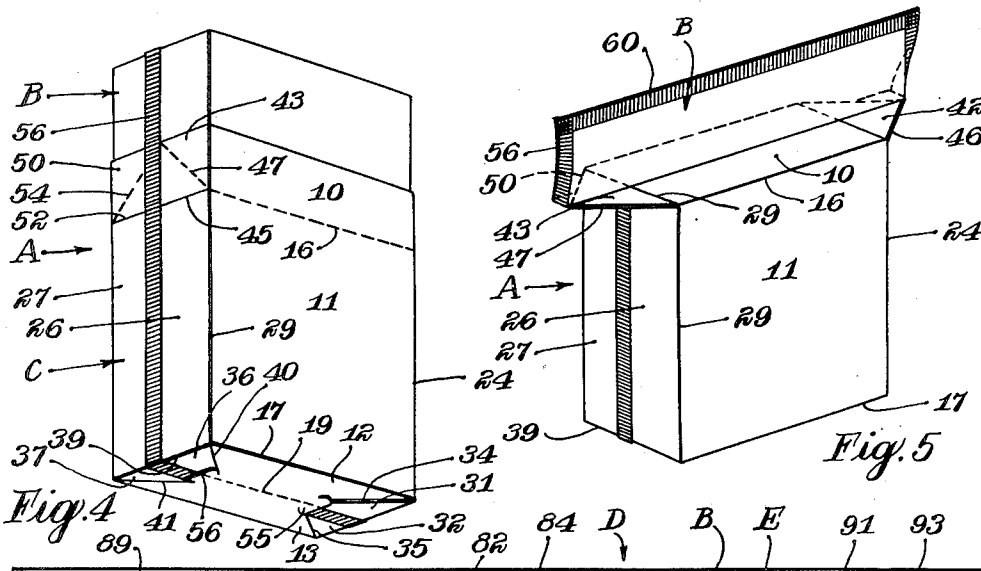
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2 Sheets-Sheet 2



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PACKAGE

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3 Claims. (Cl. 229-14)

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My invention relates to an improvement in package and deals more particularly with a package which may be hermetically sealed and which is formed of paper board combined with a moisture proof lining material.

In the packaging of frozen foods and the like it has been found extremely desirable to seal the products to be frozen hermetically before the sealing operation. While the sealing of moisture proof bags is a relatively simple operation, such moisture proof bags oftentimes do not give the proper support to the contents. As such bags are usually formed of thin flexible material, the shape of each package varies somewhat from other packages. Furthermore, flexible sealed bags do not stack well and are likely to become ruptured in handling. For this reason most persons prefer to use tubes or cartons which are of uniform size and which properly support the products.

In many instances sealed bags have been used within outer cartons or tubular containers. While such packages provide the proper support and seal the products to be frozen adequately, there are certain disadvantages in such an arrangement. In the first place the separate bag and outer package require double handling. In the second place in instances where the sealed bag does not contact the walls of the outer container throughout large areas, considerably greater time is required for the freezing operation. Furthermore, considerable storage space is usually lost due to air spaces between the inner bag and the outer container.

It is an object of the present invention to provide a package having a body of paper board which defines the shape and size of the package and which is equipped with a moisture proof sealable liner attached directly thereto. Such a package combines the strength of a paper board carton with the sealing qualities of a separate inner bag and possess most of the advantages of the former separate elements.

A feature of the present invention lies in the fact that the liner is maintained in heat exchange contact with the outer paper board covering, thereby avoiding loss in storage space due to air pockets between the liner and the carton. The attaching of the liner to the covering also insures proper heat conductivity to hasten the freezing operation.

A feature of the present invention resides in the provision of a paper board carton blank secured to a heat sealable lining material at a point spaced from the marginal edges thereof. This carton blank is so arranged that when the blank is folded so that the opposite ends thereof are in superimposed relation, the sides and end of the liner project beyond the paper board blank to permit marginal sealing of the liner.

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A feature of the present invention lies in the provision of a combined blank and liner, both of which are generally rectangular in outline shape with the paper board blank secured to the center portion of the liner. When the liner is centrally folded the opposite sides thereof project beyond the blank so that they may be heat sealed on a conventional bag sealing machine or may be sealed by the application of heat and pressure through the use of a common flat iron or curling iron. The bag thus formed may be folded into box shape with the sealed edges of the liner folded externally of the carton.

A feature of the present invention resides in providing a combined carton and liner in which the liner provides a lining for the carton and in which the heat sealed edges of the liner overlie the outer surface of the carton. As a result any imperfections in the sealing operation which might permit liquid to escape through a seam in the liner may be easily and quickly corrected during or after the filling operation by reapplication of heat and pressure at the point of leakage.

A further feature of the present invention lies in the combination of a thin paper board carton and a metal foil liner attached together as previously specified. The portions of the foil liner which form the seams of the liner fold exteriorly of the carton and act to conduct heat from the contents to the exterior of the carton. Not only are the carton contents quickly frozen, by contact with the metal foil liner, but also the foil provides a quick transfer of heat to the exterior of the carton. Even though the contents of the package engage the liner over relatively small areas of contact, the relatively high heat conductivity of the liner permits a quick dispersal of the heat of the contents to quickly freeze the contents.

These and other objects and novel features of my invention will be more clearly and fully set forth in the following specification and claims.

In the drawings forming a part of my specification:

Figure 1 is a diagrammatic plan view of the carton blank showing the construction thereof.

Figure 2 is a diagrammatic plan view of the carton in partially sealed form.

Figure 3 is a perspective view of the carton in partially open form.

Figure 4 is a perspective view similar to Figure 3 showing the carton in readiness for the filling operation.

Figure 5 is a perspective view of the carton showing the liner thereof hermetically sealed.

Figure 6 is a perspective view of the sealed carton.

Figure 7 is a diagrammatic plan view of a modified form of carton blank.

The carton A, illustrated in Figures 1 through 6 of the drawings, comprises the rectangular liner

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B having a substantially rectangular carton blank C adhered thereto. The carton blank C is of smaller dimensions than the liner B and is secured to the liner in such a way as to be spaced from the marginal edges thereof.

The liner B is, in preferred form, a sheet of metal foil such as aluminum foil and a coating of thermoplastic adhesive or the like on one surface thereof. The coated surface is the under-surface of the sheet as viewed in Figure 1 of the drawings which forms the inner surface of the liner in folded condition of the carton.

The carton blank C is formed of paper board or the like which is preferably prescored as illustrated in the drawings. The blank C includes a top panel 10, a side wall panel 11, bottom panels 12 and 13, a side wall panel 14, and a top panel 15, which are separated by substantially parallel fold lines 16, 17, 19, 20, and 21, respectively. The top panels 10 and 15 are each of a size to extend substantially half way across the top of the carton and the bottom panels 12 and 13 combine to form the bottom of the carton in erected condition of the carton A.

End wall panels 22 and 23 are connected to the side wall panels 11 and 14 respectively along aligned fold lines 24 and 25. Similar end wall panels 26 and 27 are connected to the side wall panels 11 and 14 along aligned fold lines 29 and 30. In erected form of the carton the panels 22 and 23 combine to form one end wall of the carton while the panels 26 and 27 combine to form the other end wall thereof.

The paper board blank C is continuous between the panels 22 and 23 and also between the panels 26 and 27, the portions of the blank between these respective panels being preferably separated from the bottom panels 12 and 13 by a cut line or a cut score line. The area between the panels 22 and 23 is divided into two rectangular areas 31 and 32. The rectangular area 31 is bounded by an extension of the fold line 17, the cut score line 33 aligned with the fold lines 24 and 25, an extension of the fold line 19 and the edge of the blank. The rectangular area 32 is bounded by an extension of the fold line 19, the fold or cut line 33, an extension of the fold line 20 and the edge of the blank. The rectangular areas 31 and 32 are divided into two equal triangular areas by diagonal fold lines identified by the numerals 34 and 35 respectively.

The portion of the blank connecting the panels 26 and 27 is divided into two rectangular areas 36 and 37. The rectangular area 36 is bounded by an extension of the fold line 17, the fold or cut line 39 aligned with the fold lines 29 and 30, an extension of the fold line 19 and the edge of the carton blank. The rectangular area 37 is bounded by an extension of the fold line 19, the score or cut line 39, an extension of the fold line 20 and the edge of the carton blank. The rectangular areas 36 and 37 are divided into two equal triangular areas by diagonal fold lines 40 and 41 respectively. The diagonal fold lines 34 and 35 converge together at the edge of the carton blank as do also the diagonal fold lines 40 and 41.

Rectangular flaps 42 and 43 are connected to the top panel 10 along extensions of the fold lines 24 and 29 respectively, these flaps being separated from the end wall panels 22 and 26 by cut lines or crease lines 44 and 45 respectively. Diagonal fold lines 46 and 47 divide the rectangular areas 42 and 43 into two equal triangles, these diagonal fold lines terminating at the corners of the carton blank.

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Similar rectangular flaps 49 and 50 are connected to the top panel 15 along extensions of the fold lines 25 and 30. These rectangular flaps are separated from the end wall panels 23 and 27 by cut or score lines 51 and 52. These rectangular flaps 49 and 50 are divided into two equal triangular portions by diagonal fold lines 53 and 54, which terminate at the outermost corners of the carton blank.

10 Tabs or flaps 55 and 56 are formed in the bottom wall of the carton, these tabs being defined by substantially U-shaped cut lines 57 and 59. The tabs 55 and 56 provide a means of holding the carton in open position as will be later described in detail.

15 The carton blank C is secured to the liner B by any suitable means such as by an adhesive. The carton blanks may be supplied to the ultimate user in the flat condition shown in Figure 1 of the drawings or in the centrally folded condition shown in Figure 2 of the drawings, in which position the two ends of the blank and liner have been folded into superimposed relation.

20 In erecting the carton the blank and liner is first folded along the fold line 19, which is midway between the ends of the carton blank ends C and is usually substantially midway between the ends of the liner B. The blanks are folded so that the liner B is inwardly of the carton blank C as illustrated in Figure 2 of the drawings. In this flat folded condition the opposed marginal edges 55 and 56 of the liner extend beyond the side edges of the blank. This folding operation places the thermoplastic adhesive coated surfaces of the liner B in contacting relationship. The edges 55 and 56 may accordingly be sealed together by any ordinary heat sealing equipment to form a liquid tight bag open only at one end.

25 With the opposite edges of the liner adhered together the combined carton and blank may be folded into the condition illustrated in Figure 3 of the drawings, the paper board blank folding along the fold lines 24, 25, 29 and 30, the fold lines 17 and 20, and the diagonal fold lines 34, 35, 40, and 41. Simultaneously with the folding of the blank along the above described fold lines the blank infolds along the central fold line 19 so as to bring the bottom panels 12 and 13 into coplanar relationship.

30 The projecting sealed edges 55 and 56 of the liner B are next folded flat against the surfaces from which they protrude as illustrated in Figure 3 of the drawings. The portions of the liner and blank forming the rectangular areas 31, 32, 36 and 37 which have been folded to form a double thickness triangular tab are next folded to underlie the bottom panels 12 and 13 and the ends of these triangular tabs are inserted beneath the locking tabs 55 and 56 in the bottom panels 12 and 13. The carton is then in open position as illustrated in Figure 4 of the drawings and is in readiness for the filling operation.

35 After the carton A has been filled the top of the liner B is heat sealed as indicated at 60 in Figure 5 of the drawings. This is preferably accomplished by folding the upper end of the liner in such a way as to bring the ends of the liner blank into adjacent relationship with the adhesively coated surfaces thereof. Before the sealing operation the top panels 10 and 15 may be folded into coplanar relationship on opposite sides of the liner, the flaps 42 and 43 folding along the diagonal lines 46 and 47 and the flaps 49 and 50 folding along the diagonal fold lines 53 and 54.

75 The carton A is now completely sealed and the

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contents thereof are in readiness for the freezing operation. In order to enhance the appearance of the carton and to make the same easier to store and handle, the liner is preferably folded down to overlie the coplanar panels forming the carton top and the triangular flaps formed by the diagonal folding of the flaps 42, 43, 49 and 50 are folded to overlie the top of the carton.

From the foregoing description it will be obvious that my carton may be hermetically sealed by any common heat sealing equipment or the sealing operation may be readily accomplished in the home by use of a heated flat iron or curling iron. All of the surfaces to be sealed together are in flat contacting relation at the time of sealing so that no difficulty is ordinarily experienced in this operation.

In Figure 7 of the drawings I disclose a modified form of blank D which is in most essentials similar to that previously described. With some types of stock, however, less difficulty is experienced in folding the blank if the carton blank illustrated in Figure 7 is employed. The carton D includes a liner B identical with that previously described and a carton blank E adhered thereto. The carton blank E is secured spaced from the edges of the liner B for the purpose previously described.

The carton blank E includes a top panel 61, a side wall panel 62, bottom panels 63 and 64, a side wall panel 65 and a top panel 66 connected in the sequence described by parallel fold lines 67, 69, 70, 71 and 72. End wall panels 73 and 74 are connected to the side wall panels 62 along aligned fold lines 75 and 76 while end wall panels 77 and 79 are connected to the side wall panels 62 and 65 along aligned fold lines 80 and 81. The aligned fold lines 75 and 76 are parallel to the fold lines 80 and 81.

Triangular flaps 82 and 83 are connected to one end of the panels 73 and 77 along extensions of the fold line 69. Similar triangular flaps 84 and 85 are connected to the end wall panels 74 and 79 along extensions of the fold line 71. The formation of these triangular flaps 82, 83, 84 and 85 leaves a triangular open area between the end wall panels 73 and 74 and between the end wall panels 77 and 79. In the folding of the carton as previously described in connection with the carton A, these open areas eliminate one thickness of carton stock without seriously detracting from the strength of the finished carton.

Rectangular corner areas 86 and 87 are provided between the top panel 61 and the end panels 73 and 77. These rectangular areas are divided by diagonal cut lines 88 and 89 respectively. Similar rectangular areas 91 and 92 are provided between the top panel 66 and the end wall panels 74 and 79. These last named rectangular areas are also divided by diagonal cut lines 93 and 94 to form two similar triangular portions. The cut lines in the corner areas may comprise cut score lines or score lines, but are preferably cut to simplify the folding operation.

The carton D is opened, filled and sealed in the manner previously described in conjunction with the carton A. Cut lines 95, and 96 in the bottom panels 63 and 64 form tabs into which the triangular flaps produced by the folding of the carton may be inserted to hold the carton in erected form.

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In accordance with the patent statutes, I have described the principles of construction and operation of my package, and while I have endeavored to set forth the best embodiments thereof, I desire to have it understood that obvious changes may be made within the scope of the following claims without departing from the spirit of my invention.

I claim:

1. A carton construction including a heat sealable metal foil liner of relatively high heat conductivity, a carton blank of material relatively low in heat conductivity secured to said liner spaced from the edges thereof, said blank including a rectangular intermediate panel, a pair of similarly shaped wall panels foldably connected to opposite edges of said intermediate panel, and a pair of flanges foldably connected along parallel lines to said wall panels, said intermediate panel having a fold line therethrough parallel to and intermediate said opposite side thereof, said flanges being of substantially one-half the length of said intermediate panel, said flanges being folded into coplanar relation, said liner extending between said flanges on opposite sides of the blank and sealed externally of said carton blank to provide a heat conductive passage from the exterior of the package to the interior thereof.

2. A carton blank including a rectangular bottom wall panel having a central fold line extending transversely therethrough, a pair of side wall panels foldably connected to the edges of said bottom panel parallel to said fold line, a pair of side wall flanges foldably connected to opposite edges of each side wall panel, a top wall flange foldably connected to the upper edge of each side wall panel, a triangular tab foldably connected to the lower edge of each side wall flange, said triangular tab being defined by the fold line connecting the tab to the side wall flange, a line forming a continuation of the free edge of the side wall flange, and a diagonal line emanating from the corner of the juncture between each side wall flange, its side wall panel, and the bottom wall panel, and triangular flaps foldably connected to the ends of said top wall flanges and the upper edges of said side wall flanges, said triangular flaps being formed by cutting the rectangular area of the blank between each top wall flange and the adjacent side wall flanges along a diagonal line emanating from the upper corners of said side wall panels.

3. The structure defined in claim 2 and including a metal foil liner secured to said blank and of larger dimensions than said blank so that the edges of the liner project beyond the edges of the blank on all sides thereof.

HARLAN V. ANDERSON, Sr.

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