

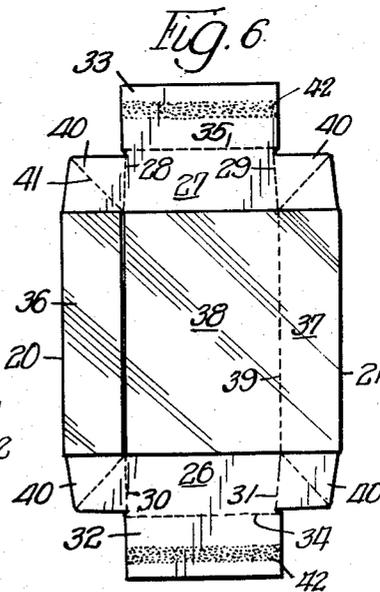
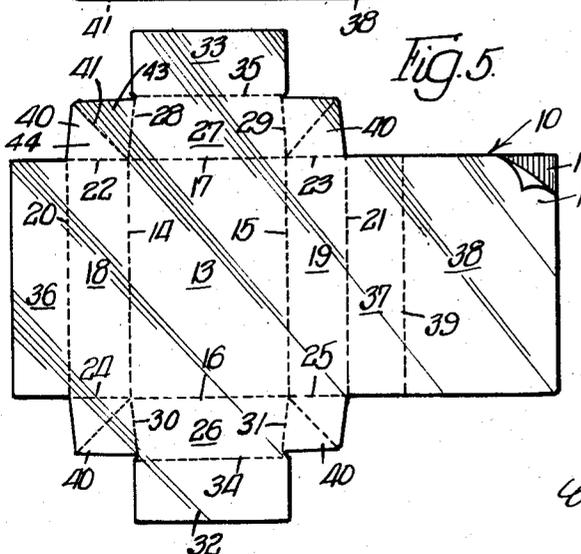
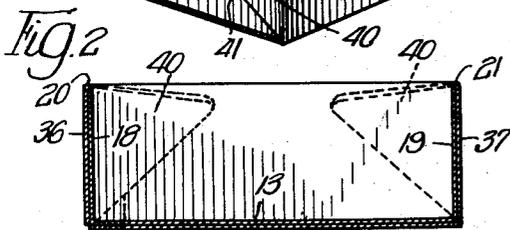
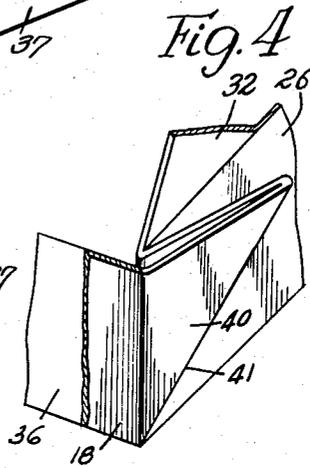
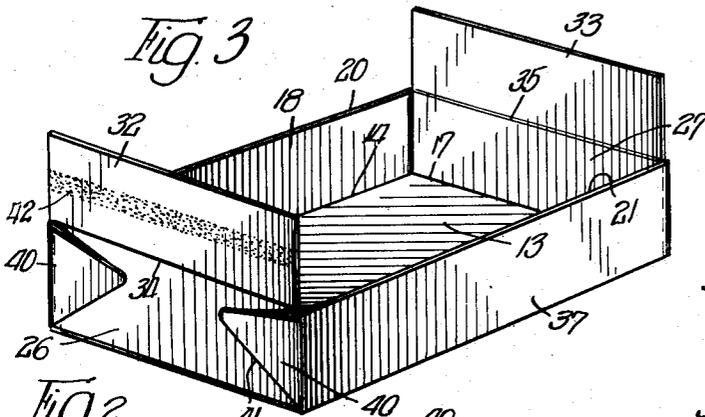
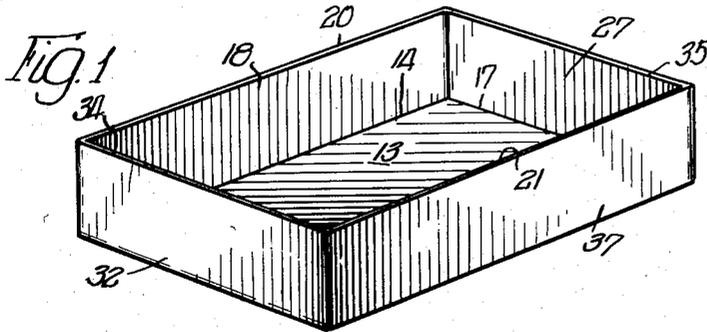
July 12, 1960

E. L. ARNESON

2,944,719

CONTAINER

Filed Aug. 8, 1956



INVENTOR.

Edwin L. Arneson,

BY

Conroy, Smith + Warden
attys

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2,944,719

CONTAINER

Edwin L. Arneson, Morris, Ill., assignor, by mesne assignments, to Federal Paper Board Company, Inc., Bogota, N.J., a corporation of New York

Filed Aug. 8, 1956, Ser. No. 602,745

3 Claims. (Cl. 229—31)

This invention relates to containers and is more particularly concerned with improvements in a fully lined liquid tight and greaseproof container which is formed from a single blank of foldable sheet material.

It is a general object of the present invention to provide a container which is formed from a one piece blank and which is fully lined by means of a single sheet of lining material secured to the blank while in flat condition, the liner sheet being so arranged and secured to the blank that it may be folded and erected to provide a tray-like container which is completely liquid tight to the tops of the side and end walls, making it particularly adapted for receiving foods or other materials which are in a liquid or semi-liquid state.

It is another object of the invention to provide a tray-type carton which is formed from a single blank of foil lined paperboard and which comprises a double thickness bottom and double thickness side and end walls in up-standing relation to the bottom, which side and end walls are connected at the corners by integral web formations folded upon themselves along diagonal lines extending outwardly from the intersection of the fold lines defining the bottom and side edges, the angles between the diagonal fold line and the adjacent end edge forming fold lines being not less than 45 degrees and one of said angles being somewhat greater than 45 degrees whereby the side walls are toed in at the top thereof when the carton is erected.

It is another object of the invention to provide a double walled carton or box which may be formed from a blank of stock material having a waterproof or other finish surface on only one side thereof, the blank being folded so that this surface is on the inside and also on the outside of the carton or box when it is erected.

It is a further object of the invention to provide a tray type carton which may be formed of relatively light stock and at the same time is strong and rigid when erected, which provides a double walled construction in which there are no raw or cut edges presented interiorly of the same, and which may be very economically produced and may be stored and shipped in knocked down or flat knocked down form and which may be quickly and easily set up or erected with a relatively simple set up machine or mechanism.

These and other advantages of the invention will be apparent from a consideration of the tray type container which is shown by way of illustration in the accompanying drawings wherein:

Fig. 1 is a perspective view of a tray type container which embodies therein the principal features of the invention;

Fig. 2 is a cross section of the container, to an enlarged scale;

Fig. 3 is a perspective view of the container in partially erected condition;

Figure 4 is a fragmentary perspective view of a corner portion of the container in partially erected condition;

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Fig. 5 is a plan view of a blank of stock material from which the container is formed; and

Fig. 6 is a plan view of the blank of Fig. 5 in partially folded condition, in which it is supplied for set up in a set up machine.

The tray type container illustrated in the drawings is one form in which the principal features of the invention may be embodied and is particularly designed for use in connection with the marketing of foods so that it may serve as a container for the initial packaging of the food and subsequently serve as a baking tray for processing the same. The illustrated construction is not limited to such use, however, since it will be readily apparent that it is adapted for other uses.

Referring first to Figs. 5 and 6, the tray container is formed from a blank 10 of stock material which comprises, preferably, a base sheet 11 of paperboard stock of relatively light weight which is covered on one face thereof with a sheet of relatively thin metal foil, preferably aluminum. The foil 12 may be attached to the paperboard stock 11 by an adhesive to form therewith an integral or laminated blank structure. The composite blank 10 is of generally rectangular form and is cut and creased or scored to divide it into a series of integrally connected panels which are adapted to be folded to form the walls of the tray. The blank is divided into an inner bottom forming panel 13 which is defined by longitudinally spaced transversely extending score lines 14 and 15 and longitudinally extending transversely spaced score lines 16 and 17. Inner side wall forming panels 18 and 19 adjoin the inner bottom wall forming panel 13 being separated therefrom by the transverse score lines 14 and 15 and having their outer edges defined by transverse score lines 20 and 21. The ends of the side wall panels are defined by longitudinally extending score lines 22 and 23 which constitute extensions of the bottom end score line 17 and longitudinally extending score lines 24 and 25 which are extensions of the bottom end score line 16 at the opposite side of the blank. Inner end wall panels 26 and 27 adjoin the ends of the inner bottom panel 13 being separated therefrom by the longitudinally extending score lines 16 and 17 and having their ends defined by corner forming score lines 28, 29 and 30, 31 which extend from the ends of the transverse score lines 14 and 15 toward the side edges of the blank 10 and are inclined slightly toward the transverse center line of the bottom wall forming panel 13. Rectangular outer end wall panels 32 and 33 adjoin the end wall panels 26 and 27 and are separated therefrom by longitudinally extending score lines 34 and 35 which form the top edges of the erected container. The outer end wall panels 32 and 33 are of substantially the same dimension in the direction longitudinally of the blank 10 as the corresponding dimension of the bottom wall forming panel 13. An outer side wall panel 36 adjoins the inner side wall panel 18 at one end of the blank 10 and is separated therefrom by the transverse score line 20, the panel 36 being of substantially the same dimensions as the inner end wall panel 18 and being adapted to be folded outwardly and downwardly about the score line 20 with the latter forming the top edge of the side wall in the fully erected container. An outer side wall panel 37 adjoins the opposite inner side wall panel 19 and is separated therefrom by the score line 21. An integrally connected outer bottom panel 38 adjoins the outer side wall panel 37 and is separated therefrom by the score line 39 which is parallel with the score line 21 and is adapted to form the bottom outer edge of the erected container. The outer side wall and bottom forming panels 37 and 38 have substantially the same dimensions as the inner side wall and bottom forming panels 19 and 13, respectively.

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These panels are foldable outwardly and downwardly about the edge forming transverse score lines 19 and 39.

The side wall forming panels 18 and 19 and the end wall forming panels 26 and 27 are integrally connected at their adjacent ends by corner web forming portions 40 which are identical and only one of which will be described. Each of the web forming portions 40 is separated from the adjoining side and end walls by the score lines defining the ends of the same, for example, score lines 22 and 28. A diagonal score line 41 extends from the intersection of the score lines 22, 28 with the score lines 14, 17 to the outermost corner of the web 40. The score line 41 divides the web 40 into generally triangular shaped portions 43 and 44 of slightly different dimensions. As previously explained, the score line 28 is not in exact alignment transversely of the blank with the score line 14 but is inclined toward a transverse center line through the bottom wall forming panel 13 so that the angle between the score line 41 and 28 is somewhat more than 45 degrees, preferably in the neighborhood of 47 degrees, while the angle between the score line 41 and the adjoining corner forming score line 22 of the side wall 18 is held at 45 degrees.

The blank 10 is initially folded into the condition shown in Fig. 6. An adhesive is applied to one or both of the contacting faces of the side and bottom wall forming panels. The outer side wall panel 36 is folded about score line 20 to provide with the inner side wall panel 18 a double side wall structure while the outer side wall and outer bottom wall panels 37 and 38 are folded about the score lines 21 and 39 into engagement with the bottom faces of the inner side wall and inner bottom wall panels 19 and 13, respectively, to form therewith double side wall and bottom wall structures. This leaves the blank in the condition shown in Fig. 6 in which it may be supplied to the user for erection in a properly designed set up machine.

In erecting the carton from the blank as shown in Fig. 6, the side wall forming panels 18 and 19 are folded upwardly about the score lines 14 and 15 into upright condition relative to the bottom wall forming panel 13 while the end wall forming panels 26 and 27 are folded into upright position about the score lines 16 and 17 with each of the corner connecting webs 40 being folded outwardly about the diagonal score lines 41 so that the web portions 43 and 44 form outwardly extending folded tab sections which are then folded inwardly about the score lines which connect the same with adjoining side and end wall forming panels to bring the inner web portions 43 into engagement with the outer faces of the inner end wall forming panels 26 and 27. Thereafter, an adhesive is applied, preferably in the form of a strip 42 or spot pattern to the inner faces of the outer end wall forming panels 32 and 33 which are then folded downwardly about the score lines 34 and 35, respectively, into engagement with the outer faces of the inner end wall forming panels 26 and 27 thereby entrapping or hiding the folded corner webs 40 between the two panels forming the double end walls of the carton. The difference in the angles between the diagonal score lines 41 and the adjoining corner forming fold lines together with the inward slant of the fold lines at the ends of the inner end wall forming panels 26 and 27 causes the ends of the side walls 18 and 19 to toe inwardly at the top thereof sufficiently to overcome any tendency to bulge outwardly. The inner fold portion 43 of each corner web 40 has a slightly larger dimension along its free edge than the outer fold portions 44 and there is a tendency when the web is folded upon itself for the inner fold portion 43 to buckle somewhat, particularly, if lightweight paperboard is used but the folds are flattened out when the outer end wall panel is folded down over the same and the difference in dimension is absorbed in the hinge areas which draws the end portion of the side wall into snug engagement against the inwardly slanted end of the inner end wall panel.

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While the illustrated container is in the form of an open topped tray, it will be appreciated that a cover unit may be provided for cooperation with the same either as a separate unit for telescoping therewith or hingedly connected along the top edge of one of the side or end walls with the cover being either unlined or lined with metal foil or similar material.

I claim:

1. A container formed of a single blank of relatively flexible and bendable sheet material which is covered on one face with relatively thin aluminum foil, said container comprising, when erected, a foil lined tray-like member having a bottom, upstanding side walls which are integral with the side edges of said bottom and upstanding end walls, said walls all having an inner panel with the side and end wall panels being integrally connected to the periphery of the bottom wall panel, each of the side and end walls having an outwardly and downwardly folded outer panel, the outer side and end wall panels being hingedly connected along the top forming edges thereof to the top edges of the respective inner side and end wall panels, corner portions connecting the inner side and end wall panels, each of said corner portions being integrally hinged to the vertical corner forming edges of the adjacent inner side and end wall panels, said corner portions each having a diagonal fold line on which it is folded and each of said corner portions being folded into engagement with the outer face of the inner end wall panel to conceal the same between the inner and outer end wall panels, with the angle formed between the said diagonal fold line and the adjoining end edge of the side wall being 45 degrees and the angle between said diagonal fold line and the end edge of the end wall being greater than 45 degrees whereby the side walls are toed in at their connection with the end walls, and said bottom wall having an outer panel which is integral with one of said outer side wall panels.

2. A container unit formed of a blank of relatively flexible and bendable sheet material, said container unit being characterized in its erected condition by a bottom, and opposed upstanding side and end walls which are integral with the side and end edges of said bottom, said end walls each having an inner panel hinged to the end edge of said bottom, and an outer panel hingedly connected along the top edge thereof to the top edge of the inner panel, said inner end wall panel having its end edges tapered inwardly of the side wall and upwardly from the bottom wall, and corner web portions each hinged to the vertically extending end edges of the adjacent inner side wall and end wall panels, each of said corner web portions being folded upon itself on a diagonal fold line which extends outwardly of the intersection of the hinge lines between the side and end walls and the bottom, and said corner web portions each being folded into a concealed position between the inner and outer end wall panels with the angle formed between the said diagonal fold line and the adjoining end edge of the inner end wall panel being in the neighborhood of 47 degrees and the angle between said diagonal fold line and the adjoining end edge of the side wall being 45 degrees whereby the side walls are toed in toward the top of the container.

3. A container formed of a blank of relatively flexible and bendable paperboard sheet material having a relatively thin metal foil attached to one surface thereof, said container comprising, when erected, a tray having a bottom and upstanding peripheral side walls which are integral with the peripheral edges of said bottom, said side walls being in oppositely disposed paired relation and each having an inner panel integral with the side edge of said bottom, and an outer panel hingedly connected along the top edge thereof to the top edge of the inner panel, and corner connecting portions between the ends of each two adjacent side walls which are integrally hinged to the adjacent end edges of the inner side wall panels, said corner connecting portions each being di-

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vided into two generally triangular sections by a diagonal hinge line on which said triangular sections are folded, and the corner connecting portions at the opposite ends of each of a pair of opposed side walls being folded about their hinged connection with the intervening side wall into a concealed position between the inner and outer panels of said intervening side wall, the angle formed between the diagonal fold line of each corner connecting portion and the adjoining end edge of the inner panel of said intervening side wall being greater than 45 degrees and the other one of said angles being 45 degrees, whereby the side walls adjacent said intervening side wall are toed in toward the center of said intervening side wall.

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716,665
1,498,375
1,926,366
1,947,199
2,189,055
2,252,023
2,334,985
2,495,807

46,242
734,713

6

References Cited in the file of this patent

UNITED STATES PATENTS

Burton ----- Dec. 23, 1902
Helfrich ----- June 17, 1924
Bergstein ----- Sept. 12, 1933
Goodnow ----- Feb. 13, 1934
Cage ----- Feb. 6, 1940
Munich ----- Aug. 12, 1941
Berry ----- Nov. 23, 1943
Buttery ----- Jan. 31, 1950

FOREIGN PATENTS

Netherlands ----- July 15, 1939
France ----- Aug. 8, 1932