

Sept. 6, 1966

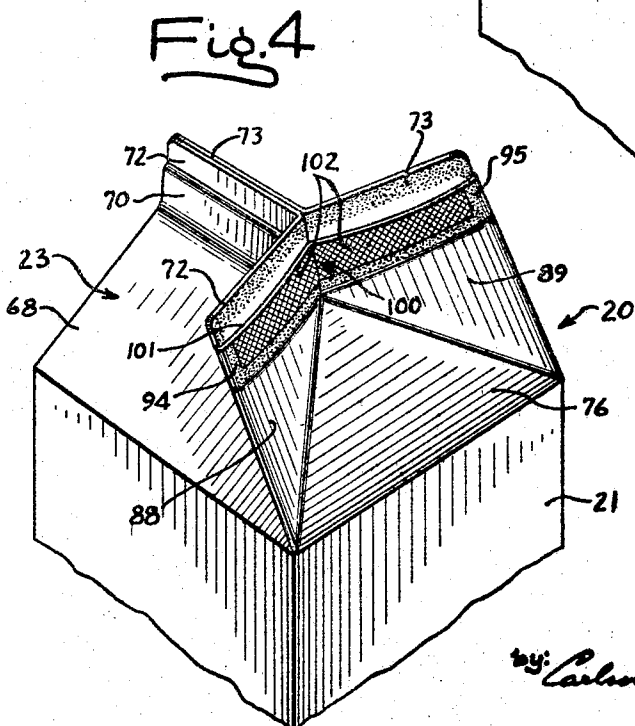
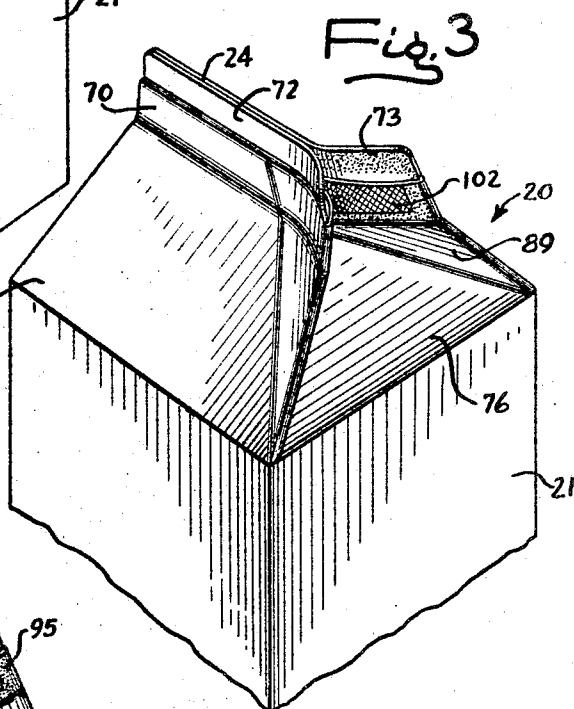
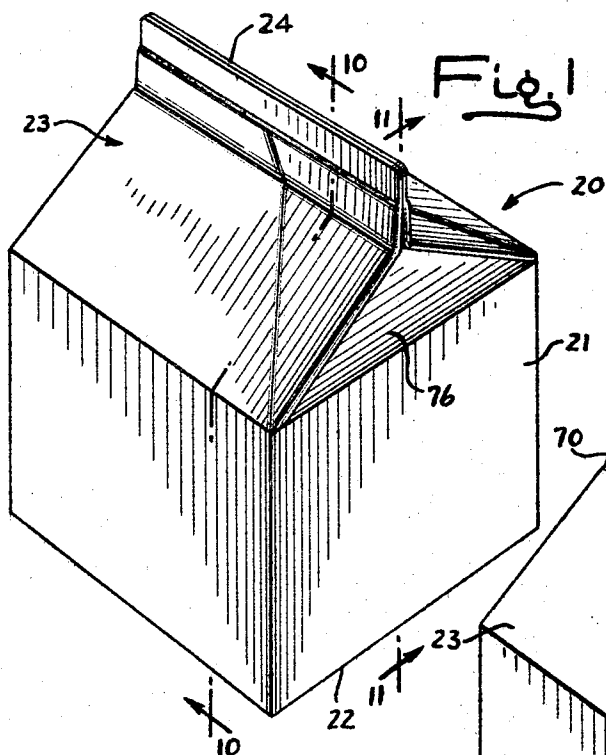
H. B. EGGLESTON ET AL

3,270,940

CONTAINER WITH EXTENSIBLE POURING SPOUT

Filed July 7, 1961

7 Sheets-Sheet 1



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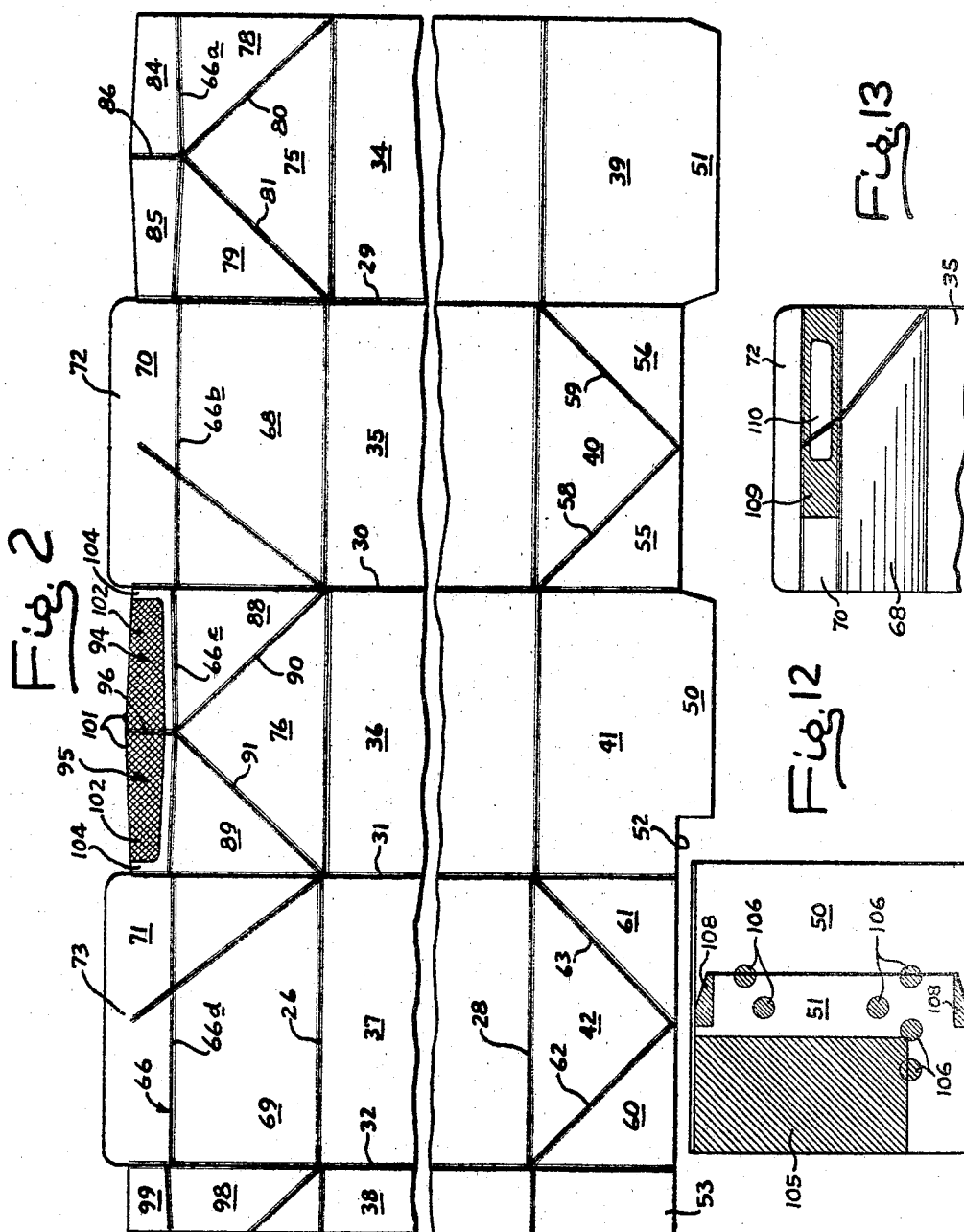
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7 Sheets-Sheet 2



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7 Sheets-Sheet 3

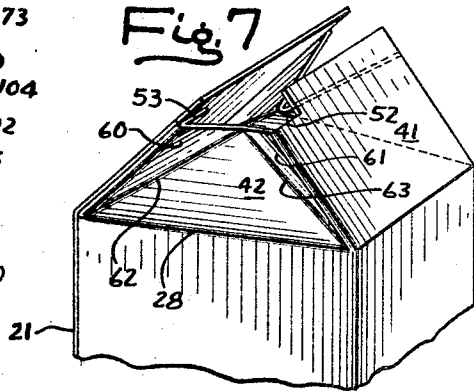
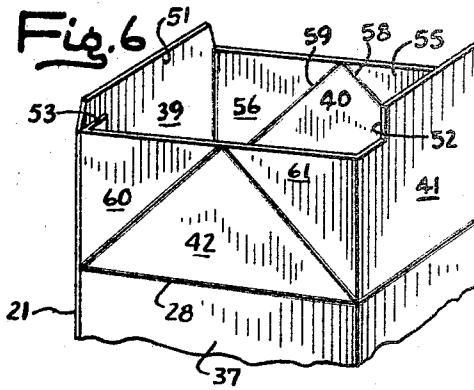
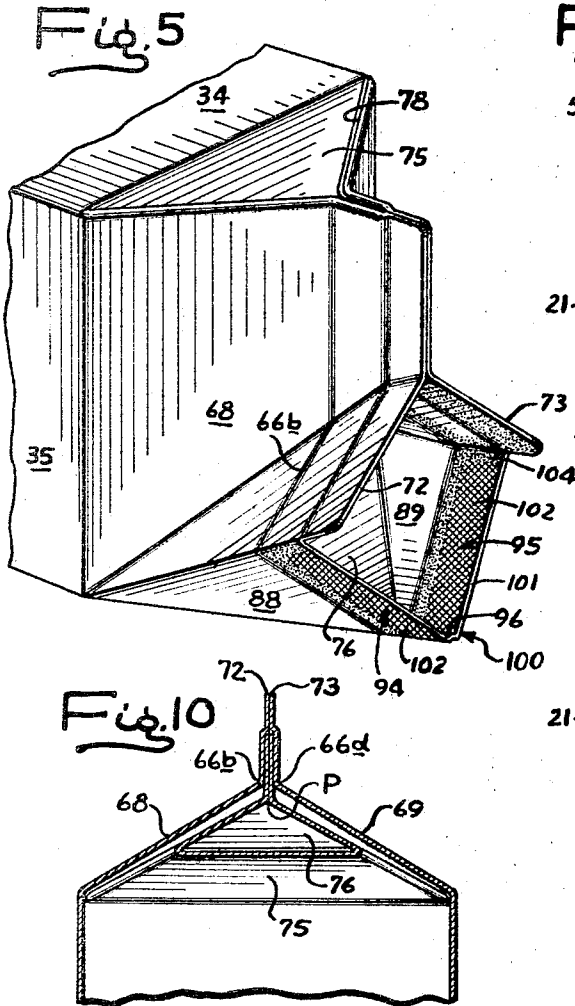


Fig. 8

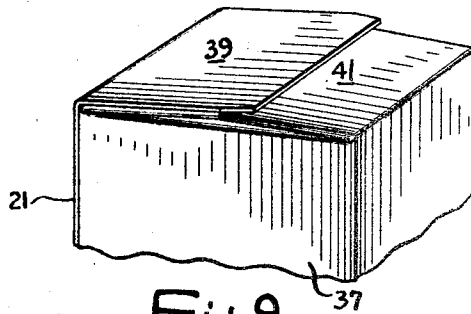
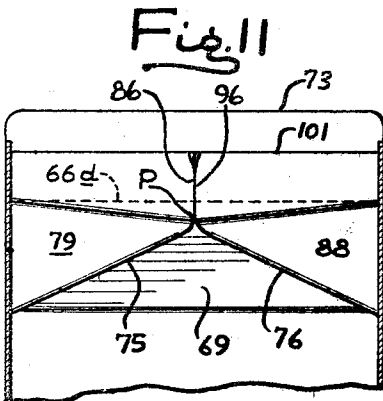
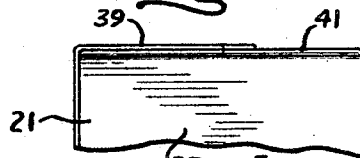


Fig. 9



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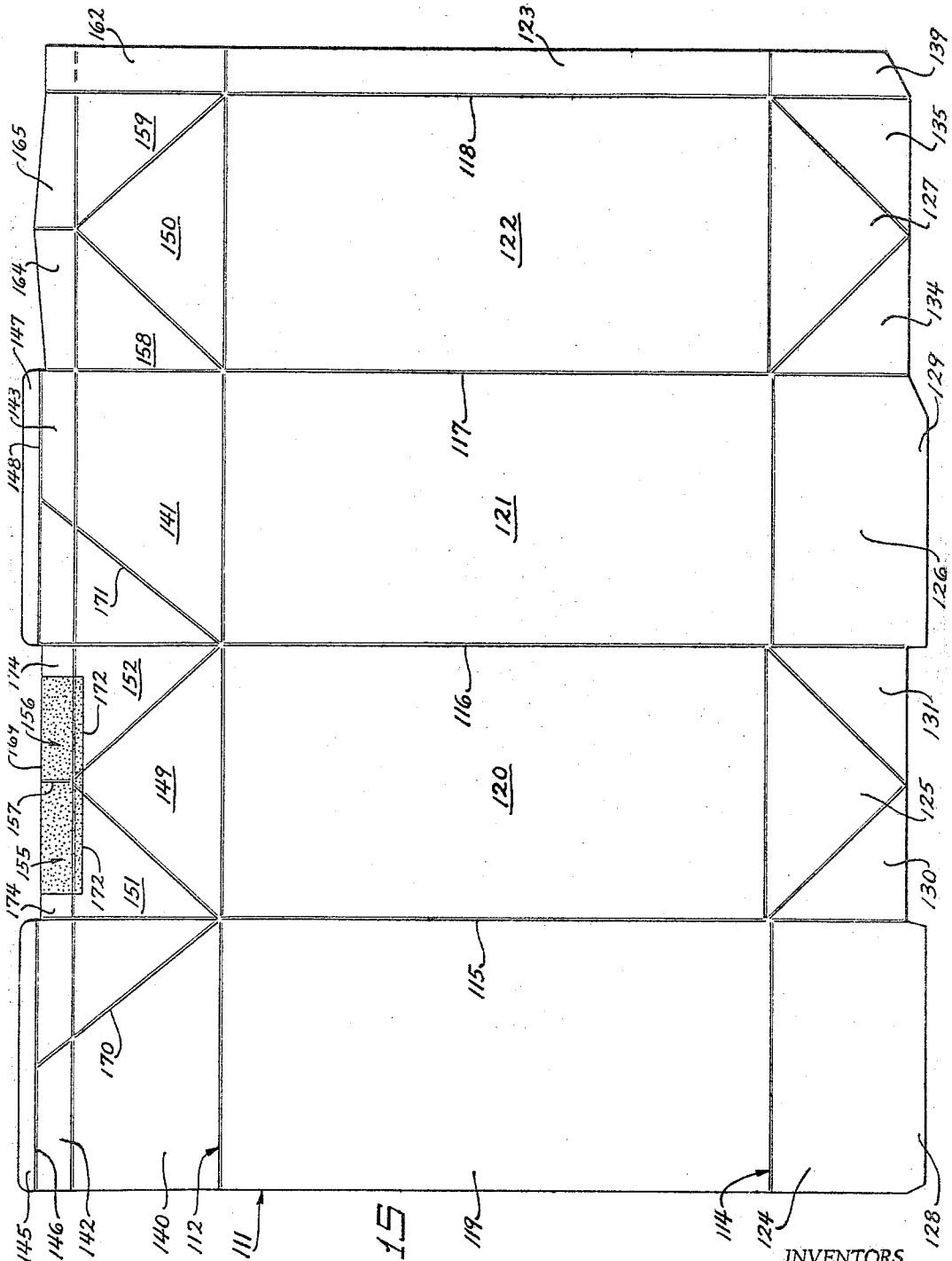


Fig. 15

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7 Sheets-Sheet 6

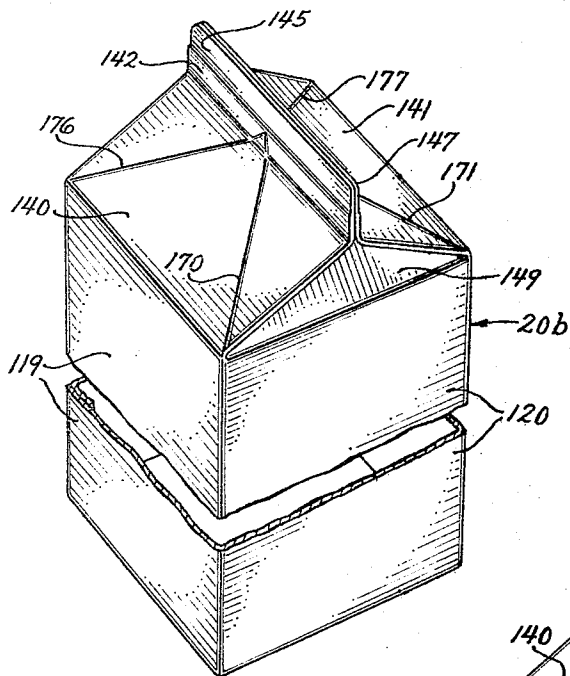


FIG. 16

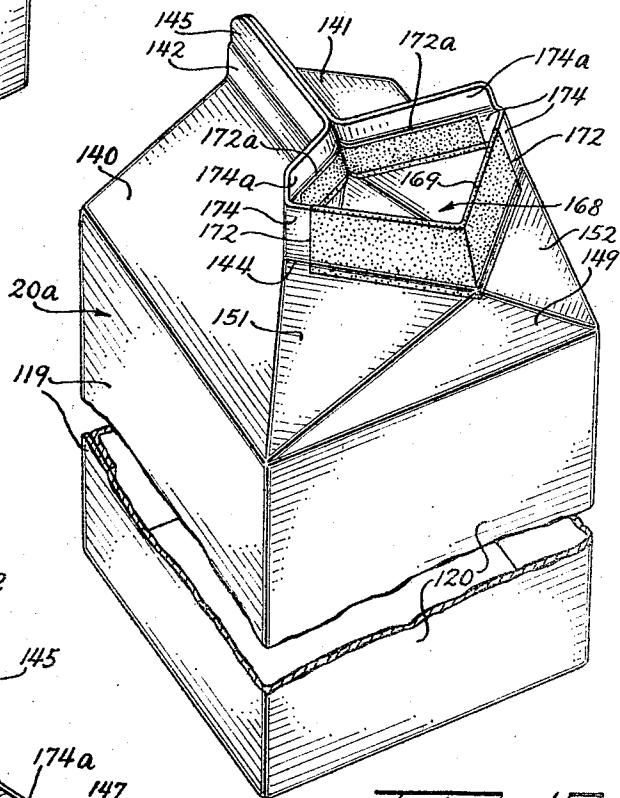


FIG. 17

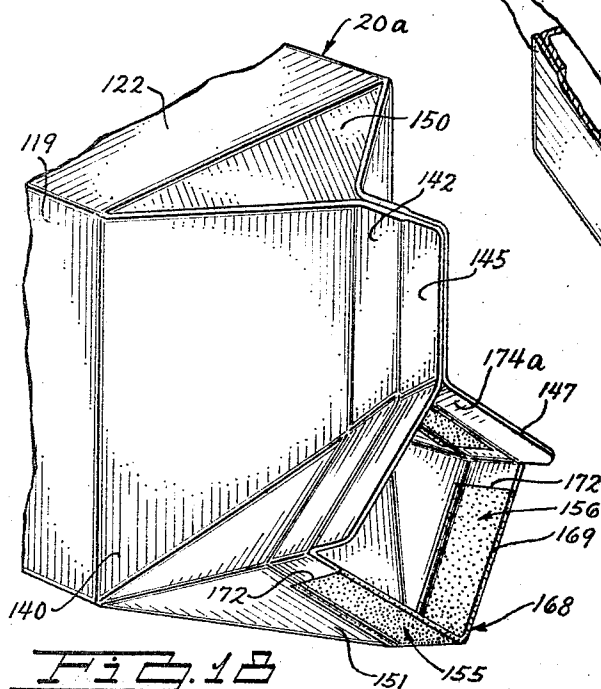
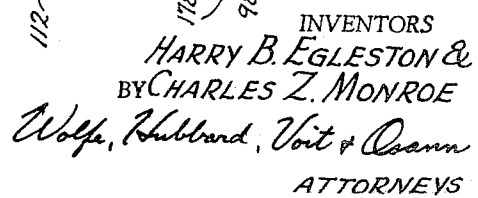


FIG. 18

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7 Sheets-Sheet 7



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CONTAINER WITH EXTENSIBLE POURING SPOUT
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Detroit, Mich., a corporation of Michigan
 Filed July 7, 1961, Ser. No. 122,571
 15 Claims. (Cl. 229-17)

This application is a continuation-in-part of our co-pending U.S. application Serial No. 707,259, filed January 6, 1958, now abandoned.

The present invention relates to packaging and more particularly to a container of the gable top variety including an extensible pouring spout. The invention finds particular, but by no means exclusive, utility in disposable containers adapted for distribution of milk and other dairy products.

One form of container of the type just noted and presently in wide commercial use is disclosed in U.S. Patent No. 2,750,095, issued June 12, 1956 on the application of Carroll R. Alden. Such a container is customarily erected from a flat blank formed of sheet stock such as paperboard which has been cut to shape and impressed with an appropriate pattern of score lines. These lines define a plurality of side panels together with corresponding upper and lower extension flaps or closure members.

The usual procedure in erecting the container is to form the blank into a polygonal tube open at both ends and then to close the lower or bottom panel extensions, retaining them in place by means of a suitable adhesive. It is presently the practice to coat or impregnate the exposed surfaces of the erected tube by immersing it in a bath of molten paraffin. Following this operation, the container is cooled to harden the paraffin and is then filled with a selected product such as milk. The container top is closed and sealed by pressing the closure elements together with heated jaws, thereby fusing the paraffin coating so that all cracks are sealed. In order to supplement the strength of the paraffin bond, the top closure elements may be stapled together.

Although paraffin coated containers of the above-described type have been commercially successful, there are certain disadvantages inherent in their use, one of the most marked of which involves the paraffin coating. In the first place, a suitable dip tank of molten paraffin must be maintained as part of the packaging machinery at the dairy or processing plant. This, along with the extra care and attention required on the part of the operator, plays a part in increasing the cost of the container and finally of the ultimate product. Also, under certain extreme conditions, globules of the paraffin coating may flake off of the container walls. While this does not impair the sanitary integrity of the contents, it does tend to impair consumer acceptance of the container.

It has now been discovered that paperboard of the quality heretofore used for dairy product containers can be economically coated with heat and pressure sensitive thermoplastic substances. The thermoplastic substance used is desirably one which is inert to the substances to be packaged, is strong and durable, is inexpensive, and is easy to apply in sheet form onto the paperboard. A coating of this sort renders the paper sheet material resistant to fluids which would be packaged in the container including such acidic products as milk. One example of such a thermoplastic substance which is useful for packaging dairy products is polyethylene. It will be apparent to those skilled in the art, however, that other thermoplastic materials, such as polyvinyl chloride, polyvinylidene chloride, polyvinyl chloride and acetate copolymer, and polypropylene, to name only a few, will find use under favorable circumstances.

Paper sheet stock for forming containers is initially

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supplied in the form of rolls, and as the stock is produced it can be coated on both sides with a layer of polyethylene thermoplastic material. One method of accomplishing this is by heating and stretching the polyethylene and applying it when hot directly onto the surface of the paper to which it becomes tightly bonded. The surface of the paper to be used for the outside of the blank is generally coated with a layer approximately $\frac{3}{4}$ of a mil thick while the inside surface of the sheet is coated with a layer of polyethylene approximately 1 to $1\frac{1}{2}$ mils thick.

It is the principal object of the present invention to provide a new and improved gable top container formed of thermoplastic sheet material, or thermoplastic-coated paperboard sheet material, and which will be strong, simple to erect, close and seal, and susceptible of high volume economical production for packaging milk and other comestibles.

Another object of the present invention is to provide a container of the above type coated with surfaces of sanitary heat and pressure sensitive thermoplastic material which not only protects the contents of the container against admission of harmful substances but also serves as a sealing adhesive for effecting tight closure and sealing of the container.

A more specific object of the present invention is to provide a container of the above characteristics which includes a sanitary extensible pouring spout completely protected within the container closure yet which can be easily released and extended by the consumer's fingertips without the use of a knife or other opener device when it is desired to open the container and dispense the contents.

Still another object of the invention is to provide a container of the above character with a spout having a clean sanitary pouring lip which cannot be damaged by sealing or opening of the container and which is completely protected within the closure by a surrounding sanitary sealing margin.

A further object of the invention is to provide a gable top container of the foregoing character having a top closure incorporating at opposite ends thereof a pair of extensible sanitarily protected pouring spouts in such manner that either spout may be selectively opened by the user with equal facility, through the application of finger-tip forces, to permit dispensing the contents of the container.

Another object of the invention is to provide a gable top container of the type set forth above and wherein the pouring lip area of the extensible spout is protected by a novel arrangement of adhesive areas within the top closure parts, avoiding interference with the closing and sealing of the top closure while leaving the pouring lip area readily accessible and undamaged upon initial opening. A related object is to provide a container utilizing such protective adhesive arrangement for the pouring lip area regardless of whether the container has one, or more than one, extensible pouring spout and pouring lip in the top closure.

A further object of the invention is to provide an improved container of the character set forth and having a bottom closure susceptible of automatic closing and sealing to form a strong leak-proof bottom on the container which will remain fluid-tight even under severe conditions of use, such as being dropped on a bottom corner.

Other objects and advantages of the present invention will become apparent as the following description proceeds, taken in connection with the accompanying drawings, wherein:

FIGURE 1 is a perspective view of an illustrative closed and sealed container embodying the present invention.

FIG. 2 is a layout view of a blank from which the container in FIG. 1 was erected and showing the inside surface thereof.

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FIGS. 3, 4 and 5 are fragmentary perspective views similar to FIG. 1 but showing sequentially various steps in opening the container.

FIGS. 6, 7, 8, and 9 are fragmentary perspective views illustrating sequentially various steps in forming the bottom of the container.

FIG. 10 is a section view taken substantially in the plane of line 10—10 of FIG. 1 and showing a sealed rib and the relative positions of the various top closure panels in a completed closure.

FIG. 11 is a section view taken substantially in the plane of line 11—11 of FIG. 1 and showing a sealed closure with a roof panel and adjoining rib panel removed.

FIG. 12 is an outside bottom view of the container of FIG. 1 and showing certain embossing of the latter in accordance with a further aspect of the invention.

FIG. 13 is a fragmentary side elevation of the top closure of the container and also showing certain embossing of the latter in accordance with a further aspect of the invention.

FIGS. 14 and 15 are layout views of the respective inside and outside faces of a modified form of blank from which a container similar to that of FIG. 1, and also embodying the invention, may be erected.

FIG. 16 is a perspective view of another illustrative closed and sealed container somewhat similar to the container in FIG. 1 and embodying another aspect of the invention.

FIGS. 17 and 18 are enlarged, fragmentary perspective views of a container formed from the blank shown in FIGS. 14 and 15, the container being fully opened with the pouring spout in extended condition.

FIGS. 19 and 20 are fragmentary layout views of the upper portion of the respective inside and outside faces of a container blank of the form adapted to produce the container of FIG. 16.

FIG. 21 is a fragmentary layout view of the upper portion of the inside face of a container blank similar to that shown in FIG. 2 but including modifications respecting the form and protection of the pouring spout.

While the invention is susceptible of various modifications and alternative constructions, a certain illustrative container has been shown in the drawings and will be described below in detail. It should be understood, however, that there is no intention to limit the invention to the specific form disclosed. On the contrary, the intention is to cover all modifications, alternative constructions, equivalents and uses falling within the spirit and scope of the invention as expressed in the appended claims.

Referring more specifically to the drawings, there is shown a container 20 (FIG. 1) which represents an illustrative embodiment of the present invention. The container 20 is formed from paper or other suitable sheet material and is self-sustaining in shape. To render the sheet material fluid-tight and capable of holding such acidic liquids as milk, the sheet material has surfaces of, or is coated with, a thermoplastic material of the type exemplified by polyethylene.

The container 20 comprises a tubular body 21 which in the present instance happens to be substantially square in cross section. At its base the body 21 is provided with a suitable bottom closure 22. The upper end of the body 21 terminates in what will be recognized as the familiar gable top end closure 23 which is surmounted by a central laminar rib or truss 24. The top end closure has incorporated therein an extensible spout for dispensing the contents of the container.

For a more detailed description of this general type of container and its extensible pouring spout, reference may be made to the above-mentioned U.S. Patent No. 2,750,095. To facilitate an understanding of the present invention, however, a brief description of such gable top and spout will be included herein.

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The container 20 is fashioned from a flat blank 25 of high-grade paperboard coated with a layer of polyethylene thermoplastic material. By means of an appropriate pattern of score lines the blank 25 (the inner face of which is illustrated in FIG. 2) is divided into a plurality of panels and areas which are utilized for the walls of the container and the closure parts when the container is erected. The central and major area of the blank becomes the body 21 of the container and is defined by spaced apart transverse score lines 26, 28, running in substantially parallel relation across the face of the blank. Intersecting the lines 26, 28, at spaced intervals therealong are a series of perpendicular score lines 29, 30, 31, and 32, which define, in the central and major area of the blank, side panels 34, 35, 36, and 37 together with a fractional side panel or side seam flap 38. When the container is erected the latter is adhesively secured in overlying relation with the inside face of the side panel 34.

It should be noted that the transverse score lines 26, 28 are not continuous but are formed in staggered portions interrupted by the perpendicular score lines 29, 30, 31, and 32. The purpose of this staggered scoring is to accommodate the thickness of the paper as the paper is bent along the score lines when the container is erected and thus prevent crowding of the paper at the various junctions of the score lines. This not only enhances the strength and appearance of the finished container but facilitates its erection and closure by automatic machinery.

Connected to the lower edges of the side panels along the lower transverse score line 28 are bottom closure flaps 39, 40, 41, and 42. Accordingly, alternate side panels 34, 36 have respectively connected therewith bottom flaps 39, 41. The latter in turn include respectively a tuck-in flap 50 and an overlying flap 51. The tuck-in flap 50 is notched at 52 so that it receives the adjacent end 53 of the side seam flap when the bottom closure is sealed. In this manner an extra thickness of sheet material at one edge of the bottom closure is avoided.

Similarly, alternate side panels 35, 37 have connected therewith along the transverse score line 28, triangular in-fold panels 40, 42, respectively. The in-fold panel 40 is flanked by triangular fold-back panels 55, 56 connected thereto along converging score lines 58, 59, starting at the intersections between the perpendicular score lines 29, 30 and the transverse score line 28, converging downwardly and intersecting at the cut lower edge of the blank (as viewed in FIG. 2). By the same token, in-fold panel 42 is flanked by fold-back panels 60, 61 connected thereto along fold lines 62, 63. In addition to the above connections, triangular-back panel 56 is connected to bottom flap 39, panel 55 is connected to flap 41, panel 61 is connected to flap 41, while panel 60 is connected to the bottom portion 53 of the side seam flap 38.

Integral with the upper ends of the side panels, but separated therefrom by the transverse score line 26, are a plurality of panel extensions which give the top of the container 20 its characteristic gable shape. These areas include a transverse score line 66 generally parallel to the score line 26 and spaced between the latter and the top edge of the blank 25. The areas below the line 66 define the roof panels and end panels of the top closure while the areas above the line 66 define the parts of the central laminar rib 24. Again score line 66 is not a straight line but includes staggered portions 66a, 66b, 66c and 66d corresponding respectively to the panels 34, 35, 36 and 37, for accommodating the thickness of the paper when the container closure is folded.

Alternate side panels 35, 37 have respectively connected therewith inclined roof panels 68, 69. The latter in turn are connected with outer rib panels 70, 71 terminating respectively in sealing flaps 72, 73 integral therewith. Similarly, alternate side panels 34, 36 have connected therewith along the staggered transverse score line 26 triangular end panels 75, 76. The triangular end panel

75 is flanked by triangular fold-back panels 78, 79 connected along converging score lines 80, 81. The latter start at the intersections of the score line 26 and the right-hand edge of the blank (as shown in FIG. 2) and perpendicular score line 29, respectively, and converge upwardly intersecting at the approximate midpoint of transverse score line 66a. A pair of inner rib panels 84, 85 are connected to the panels 78, 79, along the score line 66a and are connected to each other along a short vertical score line 86, which runs from the apex of the end panel 75 to the top edge of the blank. By the same token, end panel 76 is flanked by fold-back panels 88, 89, connected along converging score lines 90, 91. Fold-back panels 88, 89 are connected to another pair of inner rib panels 94, 95 along the score line 66c, the panels 94, 95 being connected with each other along score line 96.

It will be noted upon a careful examination of the blank 25 that the portions 66a and 66c of score line 66 converge generally downwardly in an extremely shallow V-shape from their intersections with the respective perpendicular score lines to the apex of the respective triangular end panels 75, 76. The purpose of this configuration will appear more fully hereinafter during the discussion of the sealing of the container. Suffice it to say at this point that such configuration serves to space the fold lines 66a and 66c from the fold lines 66b and 66d in the completed container closure.

The side seam flap 38 also has panel extensions 98, 99 integral therewith. When the container 20 is erected the extensions 98, 99 respectively overlie the marginal edge portions of the triangular fold-back panel 78 and the inner rib panel 84 respectively.

The blank 25 is transformed into a completed container as illustrated in FIG. 1, by first folding it upon itself to form a flat tube and adhesively securing the side seam flap 38 and its extensions 53, 98, 99 to the inside faces of panels 39, 34, 78 and 84. While it is possible to utilize the polyethylene coating as an adhesive for the side seam, it has also been found practical to apply an additional amount of adhesive thereto for purposes of forming the side seam. This added adhesive is desirably resistant to heat at the melting point of the polyethylene or other coating on the container so that side seam remains tight during subsequent closing and sealing operations. One polyethylene base adhesive used for the side seam has a melting point of about 500° F.

The flattened blank tube is then erected into a tube of substantially square cross section (FIG. 6) and the bottom closure is completed. Accordingly, the creases 58, 59, 62 and 63 are broken or given a prebend by folding the triangular in-fold flaps 40, 42 inwardly towards each other (FIG. 7). The tuck-in flap 50 is then in position for insertion beneath end flap 39 and above the triangular fold-back flaps 56 and 60 so that the bottom flap 39, which includes the sealing flap 51, overlies end flap 41, which includes the tuck-in flap 50 (as viewed in FIG. 8).

In order to seal the bottom of the container the bottom closure flaps are first broken but before they are finally folded they are subjected to a source of intense heat so as to melt or at least activate and render adhesively active the coating of polyethylene on both surfaces of the bottom closure flaps. When a polyethylene coating is used the heat must be sufficient to partially melt the coating which melts between about 230 and 275° F., depending upon its density. These flaps are then folded together and the tuck-in flap 50 is inserted in place. When the bottom closure is completed it is subjected to pressure between cooled pressure pads to cool and solidify the polyethylene plastic adhesive and thus produce a completely sealed bottom end closure.

When the container has been erected and the bottom closure sealed, it is normally in a sanitary condition. In some instances, however, it may be subjected to further sterilization as by irradiation with ultraviolet light or by

dipping in a tank of water at approximately 200° F. The sterilized containers are then filled with the desired product.

To seal the container top closure, the parts thereof are infolded into gable form. During the course of such action the triangular panel crease lines 80, 81, 90, 91 are broken by infolding the triangular end panels 75, 76 toward each other. The inner and outer rib panels and sealing flaps 72, 73 are then heated on both sides, as was done with the bottom flaps, to adhesively activate the polyethylene thermoplastic coating. The container is then closed as by passing its top rib portion between a pair of converging shoes which bring the adhesively activated rib panels and sealing flaps together to complete the gable top structure. The rib panels and sealing flaps are thereupon subjected to substantial sealing pressure which may be derived from cooled pressure jaws leaving the top closure in sealed condition as illustrated in FIG. 1.

The pressure jaws or shoes are desirably recessed to accommodate both the four thickness rib portion of the top closure and the two thickness sealing flap portion which projects upwardly to define a sealing closure overlying the top of the ribs (FIG. 10). It can thus be perceived that the thermoplastic coating on the paper from which the container is made serves not only to protect the container against the action of the contained product and to provide a sanitary coating thereon but also serves admirably as an adhesive. When polyethylene is used, the polyethylene-to-polyethylene bond is substantially stronger than the polyethylene-to-paper bond, thus affording a tight seal wherever the polyethylene coated members are heated and joined.

Provision is made in the container top closure for producing an exceptionally strong seal which will maintain its fluid-tight integrity during subsequent handling of the container up to the time it is initially opened by the user. This is accomplished in part by proportioning and arranging the top closure members so as to virtually eliminate internal stresses tending to disassemble the closure, and in part by securely blocking what might otherwise be an incipient fluid escape channel at the center of the closure.

In furtherance of such objective, the infolded top closure members are constructed in this instance so that the apexes of the triangular end panels 75, 76 will meet at a point P which is situated substantially below the score line 66b, 66d at the bases of the respective outer rib panels 70, 71 (FIGS. 10, 11). This permits the outer rib panels 70, 71 to sandwich in the inner rib panels 84, 85 and 94, 95 evenly, without any rocking or springing effect such as frequently occurred in the top closures of gable top containers of the type heretofore known. Also in keeping with the foregoing objective, the inner ends of the inner rib panels 84, 85 and 94, 95 are brought together in snug abutting relation along their respective common score lines 86, 96. Such engagement commences at the point P and becomes progressively tighter toward the upper ends of the score lines 86, 96. As a result, crowding of the inner rib panel stock occurs near the upper ends of the score lines 86, 96, as indicated in FIG. 11, making a particularly tight juncture and thus securely closing what might otherwise be an incipient fluid escape channel.

As shown particularly in FIGS. 4 and 5, an extensible sanitarily protected pouring spout 100 of pitcherlike form is incorporated into the top closure of the container 20 and rendered accessible as a result of partial disintegration or, in other words, partial disassembly of the central laminar rib 24. This is accomplished in large measure by taking advantage of the angular arrangement of score lines defining the triangular end panels and fold-back panels of the top closure. The pouring spout 100 accordingly comprises the triangular end panel 76, triangular fold-back panels 88, 89, rib panels 94, 95, adjacent portions of outer rib panels 70, 71, and adjacent portions of

inclined roof panels 68, 69 (FIGS. 1-5). The rib panels 94, 95 provide the spout 100 with a free upper edge 101 which is traversed by fluid poured from the container 20. This edge 101 serves as a pouring lip and affords excellent pouring and cut off characteristics. Moreover, the pouring edge 101 and its adjacent areas on the inner rib panels 94, 95 are completely and sanitarily sealed within the structure of the laminar top rib 24 and the spout is enclosed with complete sanitary protection up to the time the container 20 is opened by the user.

Inasmuch as both surfaces of the paper board container 20 are coated with polyethylene, a plastic-to-plastic bond will be formed when the closure members are heated and pressed together. This bond, as mentioned above, is stronger than the polyethylene-to-paper bond and for this reason it is the polyethylene-to-paper bond which tears when the top closure elements are separated to open the container and extend the spout. This leaves a rough, fibrous, and generally unattractive surface on the separated elements which acts as a blotter and readily absorbs any moisture with which it comes into contact. Referring to the above description of the spout it will be seen that such problems are encountered when the two inner rib panels 94 and 95 forming the spout are sealed together with the adjacent outer ribs 70, 71.

In accordance with one aspect of the present invention, provision is made for sealing the pouring lip area of the spout in sanitary and fluidtight relation within the top closure yet leaving the spout and its pouring lip area readily accessible in undamaged condition upon opening of the container by the user. In furtherance of such objective, the inner rib panels 94, 95 forming the spout are prevented from being adhesively secured together and to the adjacent outer rib panels 70, 71 when the closure is heated and pressure sealed. To this end there is applied to both sides of the inner rib panels 94, 95 an anti-adhesive or "abhesive" composition which is not adherent at the temperature of activation of the polyethylene. When such an abhesive material (indicated on the drawings as element 102) is applied to both sides of the inner ribs as shown in FIGS. 2, 3, 4 and 5, the container closure can be heated and sealed to enclose the spout while at the same time leaving it free and unadhered so that it later can be extended. The abhesive must be resistant to melting at the melting point of the coating. Thus, when polyethylene is used the abhesive must not melt below about 280° F. and preferably below about 300° F.

In accordance with the foregoing aspect of the invention, provision is made for completely enclosing the spout 100 and its pouring lip area with a fluidtight sanitary margin of substantial mechanical strength but frangible upon application of a deliberate sequence of outward thumb pressures by the user tending to spread the gable at the spout end of the top closure 23 to open the container. This is accomplished in the present instance by applying the abhesive 102 selectively to the central and major areas of the inner rib panels 94, 95 on both sides thereof, from the pouring edge 101 downwardly and from the center score line 96 in either direction but terminating substantially short of the opposite ends of such inner rib panels. Thus, as illustrated in FIGS. 2 and 4, a marginal sealing area 104 of untreated thermoplastic, in this case polyethylene, is left adjacent the outer end of each of the inner rib panels 94, 95. By the same token, a corresponding marginal sealing area 104a, also untreated polyethylene, is left on the inner face of each of the sealing laps 72, 73. When the top closure is completed, the marginal sealing areas 104 are joined together at the outer end of the top rib 24 and the marginal sealing areas 104a are joined so as to extend in an unbroken juncture with and from the areas 104 across the entire length of the top rib. These areas 104, 104a, in cooperation with the sealing area defined by the fixed half of the top rib 24, confine the spout and its pouring lip area with sanitary fluid-

tight integrity until the container is initially opened by the deliberate act of the user.

One abhesive which has been found useful for preventing the spout defining elements from being bonded together when the closure is sealed is a laminated sheet material having a layer of clear cellulose plastic such as cellophane bonded to a layer of polyethylene. The latter can be easily bonded to the container by placing a strip of the abhesive over the rib panels 94, 95, defining the spout lip, with the polyethylene layer in contact with the polyethylene coating on the container and heating it in place to provide a polyethylene-to-polyethylene bond. This leaves exposed a coating of cellulose over the pouring spout, and as the cellulose is not affected by the heat at the temperatures employed for bonding polyethylene, the spout lip will not be sealed to the closure although it will be completely enclosed and protected. In addition, the cellulose adds considerable strength to the lip thereby increasing its life as well as enhancing its appearance. Other abhesives, such as aniline inks having metallic additives therein, have been found satisfactory. In general, the abhesive must be of a type which is heat resistant at the temperature at which the polyethylene or other thermoplastic surface on the container blank, is activated and must also be of a suitable form for ready application to the container blank.

Referring to FIGS. 4, 5 and 10, the advantages obtained through the means of the improved seal of the present invention will become more apparent. Without the sealing flaps, the upper edges of the top rib panels would be exposed. Inasmuch as the cut edges of the container blank are not coated with polyethylene thermoplastic or otherwise treated, if they are left exposed and more important if any portion of the edges of the inner ribs defining the spout lips are left exposed, dirt and other foreign matter will tend to collect, creating an unsanitary condition as well as unfavorably appearing container. In addition, upon opening of the container 20, the sealing flaps 72, 73 remain intact for about half their length. This maintains the mechanical strength of the non-disassembled half of the top rib and, in turn, insures structural rigidity of the container even after it has been opened.

In summary, it can be easily seen that a strong, rigid, fluidtight, and completely sanitary pouring spout enclosing top closure results when the polyethylene coated closure elements are bonded together after the manner described herein, and it will be readily apparent to one skilled in the art that a sanitary seal including a complete sanitary margin surrounding the pouring lip is obtained with the combination of the sealing margin on the inner spout defining ribs and the sealing flaps extending above and across the entire length of the ribs.

For the purpose of further enhancing the fluidtight integrity and the durability of the seal in both the bottom and top closures of the container 20, an additional precaution may be taken, particularly where the container is used for packaging fluids. This involves the application of increased pressure to selected areas of the closure parts during the pressure sealing operation, producing indentations or embossments in the closure plies which effectively close up incipient fluid escape channels. In the present instance, these areas of increased pressure or embossing are represented by the crosshatched areas in FIGS. 12 and 13.

Referring more specifically to FIG. 13, rectangular embossed area 109 on outer rib panel 70 is adapted to effect blocking of the incipient channel in the top rib along the inner lateral edge of the side seam panel extension 99. The area 109 may be centrally relieved at 110 to avoid interference with the spout.

Turning now to FIGS. 14 and 15, there are shown the respective inside and outside faces of a modified container blank 111 adapted to form a container 20a illustrated in opened condition in FIGS. 17 and 18. The container 20a embodies another aspect of the invention and, prior to

initial opening, resembles the container 20 shown in FIG. 1. The blank 111, like the blank 25 described earlier herein, may be made of thermoplastic or thermoplastic-coated sheet material such as paperboard with an overall coating of polyethylene film. It will be noted, accordingly, that the central and major area of the blank 111 includes spaced apart transverse score lines 112, 114 which run in substantially parallel relation across its face. Spaced perpendicular score lines 115, 116, 117 and 118 intersect the transverse score lines 112, 114 at intervals therealong, defining side panels 119, 120, 121, 122 and a side seam flap 123. The latter is adhesively secured in overlying relation with the inside face of the side panel 119 when the container is erected and the side panels 119-122 serve to define the walls of the container body. Either or both of the transverse score lines 112, 114, may be slightly staggered or offset on alternate side panels to accommodate the paper thickness as the top and bottom closures are being formed.

Bottom closure panels 124, 125, 126 and 127 are defined in the lower part of the blank and connected to the lower edges of the side panels along the transverse score line 114. Alternate side panels 119, 121 are connected respectively with bottom closure panels 124, 126. The panel 124, in turn, includes a tuck-in flap 128 while the panel 126 includes an overlying flap 129. By the same token, bottom panels 125, 127 are connected respectively to alternate side panels 120, 122. The panel 125 is an infold panel of triangular shape flanked by a pair of triangular foldback panels 130, 131 respectively connected therealong score lines 132, 133. The foldback panel 130 is also integrally connected with the bottom panel 124 along perpendicular score line 115 while the panel 131 is connected with the panel 126 along the perpendicular score line 116. Similarly, bottom panel 127 is an infold panel of triangular shape flanked by triangular foldback panels 134, 135 connected thereto along respective ones of the score lines 136, 138. The panel 134 is also connected to the panel 126 along the perpendicular score line 117 while the panel 135 is connected to the lower portion 139 of the side seam flap along perpendicular score line 118.

The top closure parts of the blank 111 are defined in the area above the upper transverse score line 112. These include inclined roof panels 140, 141 connected respectively with alternate side panels 119, 121. The upper ends of the roof panels (as viewed in FIGS. 14 and 15) are in turn connected respectively to outer rib panels 142, 143 along a common transverse score line 144. The rib panel 142 terminates in a sealing flap 145 running along its entire length and connected thereto along a transverse score line 146. By the same token, the outer rib panel 143 terminates in a sealing flap 147 connected thereto along a transverse score line 148.

Also included in the top closure parts are triangular end panels 149, 150, connected to alternate side panels 120, 122 along the score line 112. The triangular end panel 149 is flanked by triangular foldback panels 151, 152 connected thereto along upwardly converging score lines 153, 154 which intersect with the transverse score line 144 at the apex of the panel 149. The panels 151, 152 are also connected to the inclined roof panels along the perpendicular score lines 115, 116. A pair of inner rib panels 155, 156 are connected respectively to the foldback panels 151, 152 along the transverse score line 144. The panels 155, 156 are connected to each other along a short perpendicular score line 157 extending from the intersection of the score lines 153, 154, 144 upwardly to the edge of the blank. The opposite ends of the rib panels 155, 156 are connected to the roof panels 140, 141 along perpendicular score lines 115, 116, respectively. By the same token, the triangular end panel 150 is flanked by triangular foldback panels 158, 159 connected thereto along upwardly converging score lines 160, 161. The panel 158 is connected to the roof panel 141 along the

perpendicular score line 117, while the panel 159 is connected to the upper portion 162 of the side seam flap 123 along the perpendicular score line 118. Inner rib panels 164, 165 are connected to the triangular foldback panels 158, 159 along the transverse score line 144. Panels 164, 165 are connected to each other along short perpendicular score line 166 extending upwardly to the edge of the blank from the intersection of the score line 160, 161 and 144. Inner rib panel 164 is also connected to the outer rib panel 143 along the perpendicular score line 117, while inner rib panel 165 is connected to the upper rib portion 162 of the side seam flap along the perpendicular score line 118.

The blank 111 may be erected into the completed container 20a, after the manner described earlier herein with respect to the container 20. This involves completing the side seam by effecting an adhesive juncture between the side seam flap 123 and the inner faces of the side panel 119 and related top and bottom closure panel members. The blank is then erected into an open-ended square tube and the bottom closure members are broken, closed and heat sealed. The top closure elements are then broken, the container is filled, and the top closure elements are closed and heat sealed to complete the container.

The container 20a includes an extensible sanitarily protected pouring spout 168 (FIGS. 17 and 18), similar to the spout 100 of the container 20, terminating in a pouring lip or edge 169. The spout is defined by triangular end panel 149, foldback panels 151, 152, inner rib panels 155, 156, and by adjacent portions of the roof panels 140, 141, the outer rib panels 142, 143, and the sealing flaps 145, 147. The roof panels 140, 141 and outer rib panels 142, 143 are provided with diagonal score lines 170, 171 serving as fulcrums to facilitate opening and reclosing of the spout. The score line 170 starts at or near the intersection of the transverse and perpendicular score lines 112, 115 and extends diagonally up the roof panel 140 to a termination point at the upper central portion of the outer rib panel 142. Similarly, the diagonal score line 171 starts at or near the intersection of the score lines 112, 116 and extends up the roof panel 141 to a termination point at the upper central portion of the outer rib panel 143.

Provision is made in the container 20a, after the manner described earlier herein with respect to the container 20, for protectively sealing the spout 168 and its pouring lip area in fluidtight, sanitary relation within the top closure while leaving the spout and pouring lip readily accessible in undamaged condition upon application of deliberate opening force by the user. In furtherance of such objective, the pouring spout surfaces adjacent the pouring lip, and the rib panel surfaces which contact the lip area in the completed closure, have selectively applied thereto an adhesive material which may, for example, be of the organo-siloxane type, as disclosed in copending application of D. James Crawford and Vincent Arslanian, Serial No. 118,807, filed June 22, 1961, now Patent No. 3,116,002, granted Dec. 31, 1963.

In the present instance, the adhesive material may readily be applied to the blank as by means of resilient roller printing equipment known in the trade by the name "Flexographic." As shown more specifically in FIGS. 14, 15, 17 and 18, an adhesive layer 172 is printed or otherwise applied on at least the inside surface of each inner rib panel 155, 156, extending from the pouring lip or edge 169 downwardly and somewhat below the transverse score line 144. The adhesive layer 172 on each of the inner rib panels 155, 156 terminates short of the outer end thereof, leaving at the outer end of each such rib panel a marginal sealing area 174 of untreated material on the surface of the blank. This arrangement of adhesive, when used in the container 20a, has been found to be satisfactory. In some instances, however, an additional adhesive layer 172a corresponding substantially in

size and shape to that on the inside face of each inner rib panel is also printed or otherwise applied to corresponding abutting areas on the inside faces of outer rib panels 142, 143, and inclined roof panels 140, 141, leaving marginal sealing areas 174 of untreated material adjacent the areas 174 on the inner rib panels. Each such abhesive layer 172a extends from the immediate vicinity of the score line 146 or 148 downwardly somewhat below the transverse score line 144. In the longitudinal direction, each abhesive layer 172a extends from its adjacent marginal sealing area 174 along the outer rib panel to a point somewhat beyond the upper end of the associated diagonal score line 170, 171.

The blank 111 and container 20a may include still another variation of the abhesive pattern which can be used satisfactorily. This involves omitting the abhesive layer 172 from the inside faces of the inner rib panels 155, 156 and the adjacent portions of the foldback panels 151, 152. At the same time, the abhesive layer 172 would be applied to the outside faces of the inner rib panels 155, 156 and the adjacent portions of the foldback panels 151, 152, together with the inside faces of the outer rib panels 142, 143 and the adjacent areas of the roof panels 140, 141. With all of these arrangements, marginal sealing areas 174 are created on the top rib parts and adapted to fuse together adjacent the outer or spout end of the top rib to define a fluidtight sanitary sealing margin in cooperation with the marginal sealing areas 174a of the sealing flaps 145, 147.

In order to preclude "hang up" of the tip of the pouring spout within the marginal sealing areas 174a of the sealing flaps 145, 147, with consequent difficulty of opening the container and likelihood of delamination of the container material in the region of the spout tip, resort is had to a remarkably simple yet effective arrangement in the blank 111 and the completed container 20a which it is adapted to form. This is accomplished by making the pouring lip edge 169 extend in a straight line along the top of the inner rib panels 155, 156 as distinguished from the shallow inverted V contour of the upper edge on inner rib panels 164, 165 (FIGS. 14 and 15). The edge 169 may be aligned with the sealing flap score lines 146, 148 or be offset slightly below them. Accordingly, when the top closure of the container is completed and placed in the condition exemplified in FIGS. 1, 10 and 11, the pouring lip edge 169 is always even with, or slightly below, the sealing flap score lines 146, 148 but never above them. This precludes the possibility of pinching extra plies of paperboard between the sealing flaps 145, 147 and permits the formation of a good initial seal. By the same token, such arrangement insures that the spout will always remain free and readily accessible in undamaged condition when the user opens the container in the prescribed manner. This construction is also advantageous in that elimination of the slight apex in the pouring lip edge 169 has the effect of shortening the pouring spout, thereby reducing the tendency to overshoot when pouring from the container.

Referring next to FIG. 16, there is shown a further modified container 20b somewhat similar to those already described and representing an illustrative embodiment of still another aspect of the invention. The container 20b is adapted to be formed from blank 175, the inside and outside faces of the upper portion of such blank being shown respectively in FIGS. 19 and 20. Since the blank 175 is closely similar to the blank 111 described above, like reference numerals will be used for those parts common to the blanks and attention will be focused primarily upon the top closure members of the blank 175.

As illustrated in the drawings, the blank 175 includes spaced apart transverse score lines 112, 144 intersected at intervals by the perpendicular score lines 115, 116, 117, 118. These lines define side panels 119, 120, 121, 122, and side seam flap 123, as well as the main top closure parts. The latter comprise inclined roof panels 140, 141 terminating respectively in outer rib panels 142, 143, and sealing flaps 145, 147 connected thereto along score lines

146, 148. The top closure parts also include triangular end and foldback panels 149, 151 and 152 terminating in inner rib panels 155, 156, together with triangular end and foldback panels 150, 158, 159, terminating in inner rib panels 164, 165.

In accordance with such further aspect of the invention, the container 20b includes means for protectively sealing a pair of pouring spouts and their corresponding pouring lip areas in fluidtight, sanitary relation within the top closure while leaving each spout and its associated pouring lip selectively and readily accessible to the user in undamaged condition with substantially equal facility. It will, accordingly, be noted that the blank 175 (FIGS. 19 and 20) is adapted to define in the container 20b a pouring spout 168 similar to that of the container 20a. The spout 168 has a pouring lip or edge 169 which is straight when the blank is in the condition shown in FIGS. 19 and 20. The spout 168 is defined by the triangular end and foldback panels 149, 151, 152, inner rib panels 155, 156, and adjacent portions of the inclined roof panels 140, 141, outer rib panels 142, 143, and sealing flaps 145, 147. To facilitate opening, the roof panels 140, 141 and outer rib panels 142, 143 may include diagonal score lines 170, 171. The inner rib panels 155, 156 and adjacent portions of triangular foldback panels 151, 152 may be coated on at least their inside surfaces with abhesive layers 172 after the manner described above. By the same token, the inside faces of the outer rib panels 142, 143 and inclined roof panels 140, 141 may include abhesive layers 172b corresponding to the abhesive layers 172a described earlier herein but extended longitudinally of such panels. When the container 20b is formed, the spout 168 and its pouring lip 168 may be opened out by the user in the manner already set forth, placing the container in the condition illustrated in FIGS. 17 and 18.

A second pouring spout 168, having an initially straight pouring edge 169, obtained in the container 20b by taking advantage of the other triangular end and foldback panels 150, 158, 159 and the inner rib panels 164, 165. These members, together with adjacent portions of the inclined roof panels 140, 141 and side seam flap 123, outer rib panels 142, 143, and sealing flaps 145, 147, serve to define the additional spout. For this purpose, the inclined roof panels 140, 141 and outer rib panels 142, 143 may also have diagonal score lines 176, 177 which respectively intersect the upper ends of the diagonal score lines 170, 171 in the top central region of the outer rib panels 142, 143. The point of such intersection may be at the very center of these panels or slightly offset toward either end of the top rib, as indicated in FIGS. 19 and 20. The additional spout 168 also includes abhesive layers 172 on at least the inside surfaces of the inner rib panels 164, 165 and triangular foldback panels 158, 159. In addition, the abhesive layers 172b on the inside faces of the outer rib panels 142, 143 and the inclined roof panels 140, 141 may be extended as shown in FIG. 19 so as to register with the abhesive layers 172 of the second spout 168 as well as those of the first. This arrangement leaves marginal sealing areas 173 at both ends of the top rib and which upon completion of the top closure, fuse together to define with the juncture between the sealing flaps 145, 147 a fluidtight sanitary margin. The latter has sufficient mechanical strength to tolerate even rough handling of the container yet is readily frangible upon the deliberate application of outward thumb pressures by the user at either end of the top closure. The second spout 168 may thus be opened in the same manner as the first spout and with substantially equal facility. The abhesive pattern for each of the spouts 168 in the container 20b may also be varied in the manner already described in connection with the blank 111 and container 20a.

Turning now to FIG. 21, there is shown still another modified container blank 178 adapted to form a container such as the containers 20, 20a and also embodying the invention. Since the blank 178 is closely similar to the blank 25 (FIG. 2) described earlier herein and includes

many common parts which are designated by like reference numerals, only the upper portion of the inside face thereof has been shown. In this instance, the spout pouring lip or edge 179, like the lip 169, extends in a straight line along the inner rib panels 94, 95 rather than having a shallow inverted V contour like the lip 101 of the blank 25. In addition, the blank 178 has a pattern of adhesive layers 172, 172a which may be printed or otherwise applied thereon after the manner described in connection with the blank 111 shown in FIGS. 14 and 15. The container produced by the blank 178 when closed resembles the container 20 shown in FIG. 1 and, when opened in the manner prescribed earlier herein, resembles the container 20a shown in FIGS. 17 and 18.

We claim as our invention:

1. A gable top container of paperboard or the like coated overall with a thermoplastic material that becomes an adhesive when subjected to heat, said container comprising, in combination, a tubular body having a bottom closure thereon, a pair of opposed roof panels inclined toward each other and overlying said body, a pair of opposed triangular end panels in-folded between said roof panels from the opposite gable ends formed by the latter, two pairs of triangular fold-back panels each pair of which is integral with a respective one of said in-folded triangular end panels along fold lines which underlie said roof panels, said fold-back panels being folded adjacent the undersides of said roof panels, an outer rib panel surmounting each roof panel, a pair of inner rib panels joined by a fold line and surmounting each pair of triangular fold-back panels and adjoining end panel, a sanitarily protected extensible pouring spout housed in collapsed condition within said container and defined in part by one of said triangular end panels and an adjacent pair of said fold-back panels and an adjacent pair of said inner rib panels, said spout also being defined by adjacent portions of said roof panels and outer rib panels, an adhesive layer interposed between each of said spout-defining inner rib panels and the one of said outer rib panels adjacent thereto, said adhesive layers terminating short of the outer ends of said inner and outer rib panels and defining thereon marginal sealing areas adjacent said adhesive, an upstanding sealing flap integral with each one of said outer rib panels, each said sealing flap having a marginal sealing area defined thereon, said rib panels and said marginal sealing areas being sealed together into a top closure rib surmounted by an upstanding sealing rib enclosing said extensible spout with a fluidtight sanitary margin.

2. A gable top container of paperboard or the like coated overall with a thermoplastic material that becomes an adhesive when subjected to heat, said container comprising, in combination, a tubular body having a bottom closure thereon, a pair of opposed roof panels inclined toward each other and overlying said body, a pair of opposed triangular end panels in-folded between said roof panels from the opposite gable ends formed by the latter, two pairs of triangular fold-back panels each pair of which is integral with a respective one of said in-folded triangular end panels along fold lines which underlie said roof panels, said fold-back panels being folded adjacent the undersides of said roof panels, an outer rib panel surmounting each roof panel, a pair of inner rib panels surmounting each triangular end panel and adjoining fold-back panels and joined together along a fold line extending from the top to the bottom thereof at the apex of the triangular end panel, a sanitarily protected extensible pouring spout housed in collapsed condition within said container and defined in part by one of said triangular end panels and an adjacent pair of said fold-back panels and an adjacent pair of said inner rib panels including a pouring lip, said spout also being defined by adjacent portions of said roof panels and outer rib panels, adhesive layers abutting both sides of said spout-defining pair of inner rib panels and covering the area thereof adjacent the

pouring lip and the fold line joining the two inner rib panels but terminating short of the entire area of said inner rib panels thereby leaving marginal sealing areas on said inner rib panels adjacent said adhesive, a pair of upstanding sealing flaps each integral with one of said outer rib panels and each having a marginal sealing area defined thereon, said rib panels and said marginal sealing areas thereon being sealed together and defining a top closure rib enclosing said pouring spout with said pairs of inner rib panels abutting along the upper portions of said fold lines, said sealing flaps and the marginal sealing areas thereon being sealed together and defining an upstanding sealing rib surmounting said top closure rib, whereby said spout is completely enclosed by a fluidtight sanitary margin.

3. In a gable top container having a pair of roof panels inclined toward each other and a pair of triangular end panels joined to the roof panels by triangular fold-back panels, said container also having a plurality of inner and outer rib panels surmounting said roof and triangular panels and enclosing in collapsed condition a sanitarily protected extensible pouring spout defined in part by a pair of said inner rib panels and an adjacent pair of said outer rib panels, the combination comprising, a pair of upstanding sealing flaps integrally coextensive with each one of said outer rib panels, an overall coating on said sealing flaps and said rib panels and the other surfaces of said container, said overall coating being a thermoplastic material which becomes adhesive when subjected to heat, and layers of adhesive material abutting the spout-forming inner rib panels and said adjacent pair of said outer rib panels over less than their entire surfaces and thereby leaving a fluidtight marginal sealing area between said adhesive and the exterior of said container, said adhesive material being resistant to adhesion when subjected to the heat applied to the thermoplastic coating thereby preventing the spout-forming inner rib panels from adhering to said outer rib panels when the latter and the remaining inner rib panels and the sealing flaps are sealed together to form an upstanding closure rib surmounted by an upstanding sealing rib, said ribs defining a fluidtight sanitary margin which is frangible upon application of deliberate opening pressure to expose said pouring spout.

4. The combination defined in claim 3 wherein said thermoplastic coating is polyethylene.

5. A gable top container of foldable sheet material having overall surfaces of thermoplastic material that becomes an adhesive when subjected to heat, said container comprising the combination of a tubular body having a bottom closure thereon, a pair of opposed roof panels inclined toward each other and overlying said body, a pair of opposed triangular end panels in-folded between said roof panels from the opposite gable ends formed by the latter, two pairs of triangular fold-back panels each pair of which is integral with a respective one of said in-folded triangular end panels, said fold-back panels being folded adjacent the undersides of said roof panels, an outer rib panel surmounting each roof panel, a pair of inner rib panels joined by a fold line and surmounting each pair of triangular fold-back panels and adjoining end panel, a pair of sanitarily protected extensible pouring spouts housed in collapsed condition within said container and each defined in part by one of said triangular end panels and an adjacent pair of said fold-back panels and an adjacent pair of said inner rib panels, each said spout also being defined by adjacent portions of said roof panels and outer rib panels, an adhesive layer interposed between each of said spout-defining inner rib panels and the one of said outer rib panels adjacent thereto, said adhesive layers terminating short of the outer ends of said inner rib panels and defining thereon marginal sealing areas adjacent said adhesive, an upstanding sealing flap integral with each one of said outer rib panels, each said sealing flap having a marginal sealing area thereon, said rib panels and said marginal sealing areas being

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sealed together into a top closure rib surmounted by an upstanding sealing rib enclosing both said extensible spouts with a fluidtight sanitary margin.

6. A gable top container of paperboard or the like coated overall with a thermoplastic material that becomes adhesive when subjected to heat, said container comprising the combination of a tubular body having a bottom closure thereon, a pair of opposed roof panels inclined toward each other and overlying said body, a pair of opposed triangular end panels in-folded between said roof panels from the opposite gable ends formed by the latter, two pairs of triangular fold-back panels each pair of which is integral with a respective one of said in-folded triangular end panels, said fold-back panels being folded adjacent the undersides of said roof panels, an outer rib panel surmounting each roof panel, a pair of inner rib panels surmounting each triangular end panel and adjoining fold-back panels and joined together along a fold line extending from the top to the bottom thereof at the apex of the triangular end panel, a pair of sanitarly protected extensible pouring spouts housed in collapsed condition within said container and each defined in part by one of said triangular end panels and an adjacent pair of said fold-back panels and an adjacent pair of said inner rib panels including a pouring lip, each said spout also being defined by adjacent portions of said roof panels and outer rib panels, abhesive layers abutting both sides of said spout-defining pairs of inner rib panels and covering the area thereof adjacent the pouring lip and the fold line joining the two inner rib panels but terminating short of the entire area of said inner rib panels thereby leaving marginal sealing areas on said inner rib panels adjacent said abhesive, a pair of upstanding sealing flaps each integral with one of said outer rib panels and each having a marginal sealing area thereon, said rib panels and said marginal sealing areas thereon being sealed together and defining a top closure rib enclosing each said pouring spout with said pairs of inner rib panels abutting along the upper portions of said fold lines, said sealing flaps and the marginal sealing areas thereon being sealed together and defining an upstanding sealing rib surmounting said top closure rib, whereby both said spouts are completely enclosed by a fluidtight sanitary margin.

7. A blank for a container of foldable sheet material having overall surfaces of thermoplastic material that becomes adhesive when subjected to heat, said blank comprising, in combination, a plurality of bottom closure panels, a plurality of side panels, a pair of roof panels connected to alternate ones of said side panels as extensions thereof, a pair of outer rib panels connected to said roof panels as extensions thereof, a pair of sealing flaps connected to said outer rib panels as extensions thereof, a pair of triangular end panels connected to additional alternate ones of said side panels as extensions thereof, a pair of triangular fold-back panels flanking each said triangular end panel, a pair of inner rib panels connected to each said pair of triangular fold-back panels, at least one pair of said inner rib panels being adapted to define a portion of a pouring spout in an erected container, and a layer of abhesive material on said one pair of said inner rib panels terminating short of and spaced from the opposite ends thereof to define marginal sealing areas thereon.

8. A blank for a container as defined in claim 7 and wherein said one pair of inner rib panels has a common outer edge extending in a straight line and the other pair of inner rib panels has a common outer edge of inverted V-shape.

9. A blank for a pouring spout container of foldable sheet material having overall surfaces of thermoplastic material that becomes adhesive when subjected to heat, said blank and its component parts having an inside surface and an outside surface and comprising, in combination, a plurality of bottom closure panels, a plurality of side panels, a pair of roof panels connected to alternate

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ones of said side panels as extensions thereof, a pair of outer rib panels connected to said roof panels as extensions thereof, a pair of sealing flaps connected to said outer rib panels as extensions thereof, a pair of triangular end panels connected to additional alternate ones of said side panels as extensions thereof, a pair of triangular fold-back panels flanking each said triangular end panel, a pair of inner rib panels connected to each said pair of triangular fold-back panels, at least one pair of said inner rib panels being adapted to define a portion of a pouring spout in an erected container, layers of abhesive material on at least the inside surfaces of said one pair of said inner rib panels but terminating short of and spaced from the opposite ends thereof to define marginal sealing areas thereon, and corresponding layers of abhesive material on the inside surfaces of said outer rib panels also terminating short of and spaced from the opposite ends thereof to define marginal sealing areas thereon.

10. The container blank defined in claim 9 and wherein at least one pair of said inner rib panels has a common outer edge extending in a straight line and the other pair of inner rib panels has a common outer edge of inverted V-shape.

11. A tubular-like container formed from a blank of sheet material and comprising four side walls, a bottom closure and a gable-like top closure including a central upstanding transverse rib structure, said top closure comprising a pair of opposite outer closure panels and a pair of opposite inner closure panels arranged between said outer closure panels and co-operating therewith, each of said inner and outer closure panels having a common level generally horizontal fold line extending across its upper portion and defining the bottom boundary of an integral secondary closure portion of each of said closure panels; the upper boundaries of said secondary closure portions being at substantially a common level, said outer closure panels having an auxiliary tab commencing at the upper boundary of the respective of said secondary closure portions, said tabs being of substantially the same transverse width as the width of the underlying associated outer closure panel, each of said inner closure panels below the respective fold line being folded inwardly on two symmetrically disposed inclined fold lines commencing at the lower corners of the respective panel and extending upwardly to intersect one another at the respective of said horizontal fold lines and said secondary closure portion of each of said inner panels being folded inwardly along a vertical fold line commencing at said intersection and extending to the upper edge of the respective inner panel, whereby each of said inner panels is formed with a single upwardly and inwardly extending triangular shaped portion below its respective horizontal fold line, said upper edge defining the upper boundary of the respective secondary closure portion for each of said inner panels, said secondary closure portions of each of said inner panels being disposed in generally juxtaposed, substantially vertically extending and confronting relation to form said rib structure, said auxiliary tabs being disposed in juxtaposed confronting relation and projecting above said juxtaposed secondary closure portion of said inner and outer closure panels to form an upward vertical extension of said rib structure, a heat-flowable resin material adhesively coacting with the juxtaposed confronting surfaces of the secondary closure portions of each of said inner panels and with the juxtaposed confronting surfaces of said auxiliary tabs and cohesively coacting therebetween respectively to releasably seal and secure said confronting surfaces in juxtaposed position and thereby confine the contents within the container, a layer of abhesive material interposed between the secondary closure portion of one inner closure panel and the juxtaposed secondary closure portions of said outer closure panels, said one inner closure panel being foldable outwardly upon separation of the secured confronting surfaces from one end of said rib structure to approximately the center thereof to expose

the underlying inner panel, whereby the latter may be urged outwardly beyond the underlying side wall to form a collapsible pouring spout for discharging the contents of the container.

12. A gable top container of paperboard or the like coated overall with a thermoplastic material that becomes an adhesive when subjected to heat, said container comprising, in combination, a tubular body having a bottom closure thereon, a pair of opposed roof panels inclined toward each other and overlying said body, a pair of opposed triangular end panels in-folded between said roof panels from the opposite gable ends formed by the latter, two pairs of triangular fold-back panels each pair of which is integral with a respective one of said in-folded triangular end panels along fold lines which underlie said roof panels, said fold-back panels being folded adjacent the undersides of said roof panels, an outer rib panel surmounting each of said roof panels, a pair of inner rib panels joined by a fold line and surmounting each pair of triangular fold-back panels and adjoining end panel, a sanitarily protected extensible pouring spout housed in collapsed condition within said container and defined in part by one of said triangular end panels and an adjacent pair of said fold-back panels and an adjacent pair of said inner rib panels, said spout also being defined by adjacent portions of said roof panels and outer rib panels, and an adhesive layer interposed between each of said spout-defining inner rib panels and the one of said outer rib panels adjacent thereto, said adhesive layers terminating short of and being spaced from the outer ends of said spout-defining inner rib panels and defining thereon marginal sealing areas adjacent said outer ends.

13. A gable top container of paperboard or the like coated overall with a thermoplastic material that becomes an adhesive when subjected to heat, said container comprising, in combination, a tubular body having a bottom closure thereon, a pair of opposed roof panels inclined toward each other and overlying said body, a pair of opposed triangular end panels in-folded between said roof panels from the opposite gable ends formed by the latter, two pairs of triangular fold-back panels each pair of which is integral with a respective one of said in-folded

triangular end panels along fold lines which underlie said roof panels, said fold-back panels being folded adjacent the undersides of said roof panels, an outer rib panel surmounting each of said roof panels, a pair of inner rib panels joined by a fold line and surmounting each pair of triangular fold-back panels and adjoining end panel, a sanitarily protected extensible pouring spout housed in collapsed condition within said container and defined in part by one of said triangular end panels and an adjacent pair of said fold-back panels and an adjacent pair of said inner rib panels, said spout also being defined by adjacent portions of said roof panels and outer rib panels, and releasable sealing means on each of said spout-defining inner rib panels for permitting separation of said inner rib panels from said outer rib panels to form said pouring spout, said releasable sealing means terminating short of and being spaced from the outer ends of said spout-defining inner rib panels.

14. A blank for a container of foldable sheet material as defined in claim 13.

15. A blank for a container as defined in claim 11.

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