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METHOD OF FORMING A POURING SPOUT BLANK

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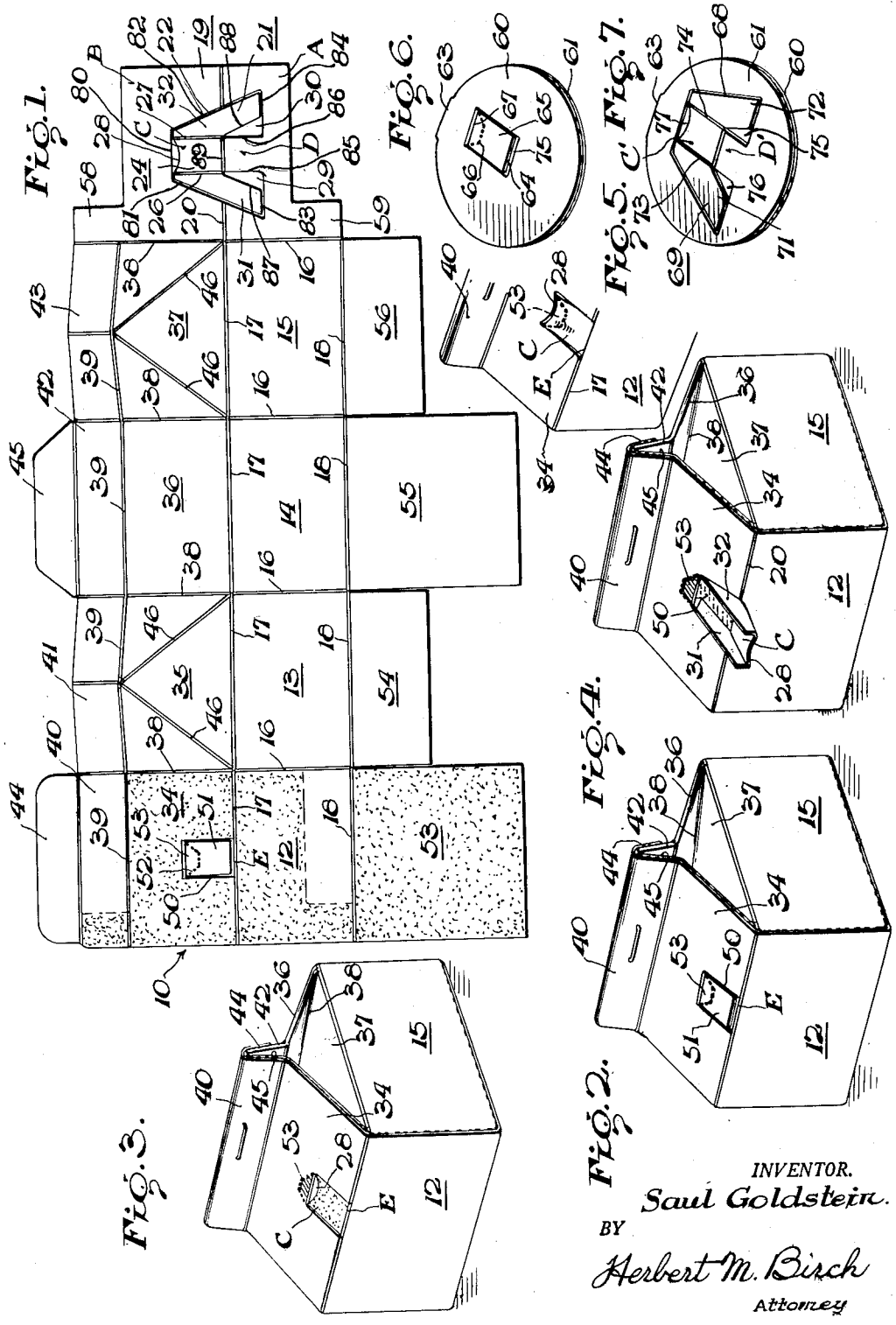

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METHOD OF FORMING A POURING SPOUT BLANK

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1 Claim. (Cl. 93—58)

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The present invention relates to the combination of novel improvements in waxed liquid holding containers formed from one folded sheet of material with a novel pouring spout therefor and the method of integrally forming and making the spout from only two thicknesses of the folded container, to thereby accommodate the container to manufacture with standard carton forming machinery of the milk carton type.

Heretofore, pouring spouts for liquid containing cartons have been unsatisfactory for two main reasons, first they are inefficient in operation because they leak and drip, are unsanitary, do not properly serve as a closure to seal the container once it is opened, and are very perishable and deformable due to the fact that they are not properly supported by a rigid fulcrum point; and second all prior art spout arrangements if made stronger and less leaky become too bulky for manufacture in the present standard milk carton machinery, which requires all sidewall folds to be kept at two thicknesses of material.

Accordingly, one object of the present invention is to provide from one sheet of material a liquid holding container with an integrally formed pouring spout, wherein all elements of the container and spout are formed in two thicknesses or less of the material.

Another object is to provide in a carton for milk or the like, a rigid fulcrum point across the bottom of a pouring spout formed from one thickness of the carton material, to thereby contribute to the strength, rigidity and efficiency of the pouring spout.

Still another object is to develop a pouring spout adapted to effectively cooperate with a sealing tongue formed in the carton wall to serve as a closure for the carton after initial use.

A further object is to provide a novel method of making pouring spouts from two thicknesses of material to form a positive fulcrum point and liquid sealing closure after each use of the spout.

A further object is to so shape, so proportion and crease a plane surfaced single sheet of material as to form a carton blank with a pouring spout, which at no point when it is folded exceeds a two ply thickness at its side wall flap sections.

With these and other objects in view, the invention consists in the construction, arrangement and combination of parts hereinafter described and particularly pointed out in the claim.

In the drawing like parts throughout the several views are given like numerals and are thus identified in the following detailed description:

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Figure 1 is an inside view of the blank before it is formed into a container.

Figure 2 is a perspective view of the container assembled and waxed before the seal is broken for use.

Figure 3 is a view similar to Figure 2, but with the sealing tab removed from the tongue prior to pulling out the spout.

Figure 4 is a perspective view showing the spout pulled out for pouring.

Figure 5 is a partial perspective view showing the cooperation between the spout and tongue for closing the container after use.

Figure 6 is a modification of the present invention showing a top plan view of the novel spout of the present invention applied to a disc type bottle cap.

Figure 7 is a bottom plan view of Figure 6.

Referring to the drawing in detail, Figure 1 illustrates a blank from which the container and its pouring spout are formed.

The blank is formed from one sheet of material 10, such as cardboard or the like. The cardboard material is formed into four side wall sections 12, 13, 14 and 15 by side score lines 16, top score lines 17 and bottom score lines 18 and into a fifth pouring spout section 19, which also includes a continuation 20 of the top score lines 17.

The pouring spout wall section 19 serves to form part of the container top as well as the side thereof and is formed with a trapezoidal cut out section or blank 21, whereby there is formed a trapezoidal opening 22. This opening is bounded by a cutting line 30, a pair of cutting lines 31 and 32 of equal lengths each starting at one end of line 30 and diverging from the other. From each of the other ends of lines 31 and 32 starts one of a pair of colinear cutting lines 33 and 34, respectively, and each extends in parallelism to line 30. From each of the adjacent inner ends of lines 33, 34 and perpendicular thereto extends one of a pair of parallel cutting lines 35, 36 toward line 30. From each of the ends of lines 35, 36 extends a line 37, 38 respectively in parallelism to one of the diverging lines 31, 32. Score line 39 is colinear with score line 20. For example, this section 19 comprises a side wall forming section A and a top wall forming section B. The blank 21 in turn is trimmed to form the present novel pouring spout blank, which comprises a rectangular body strip 24 divided by a portion of the score line 20 into an upper section C and a lower section D. The upper

section C is defined by side score lines 26 and 27 and by a top arcuate or curved edge 28, which edge is free to swing in the trapezoidal opening 22. The lower section D is defined by a pair of right angle cut-out portions 29 and 30 at each side which are removed in some manner to afford clearance for the inward movement of the spout wings 31, 32 to spout-forming position, the score line 20 at the top, and the base is formed as an integral part of the bottom edge of the trapezoidal opening 22.

Secured to the upper section A of the body strip 24 along the score lines 26 and 27 are wing-like diverging members 31 and 32, which are free of the side walls of the opening 22 and therefore free to swing with the upper section C of the body strip 24 in the said opening. The section D is fixed after carton assembly as hereinafter explained.

The top of the container is made from rectangular panels 34, 35, 36 and 37 formed by side score lines 38, score lines 17, and upper score lines 39 above which are folded flaps 40, 41, 42, 43, 44 and 45.

The top rectangular sections 35 and 37 are each formed with diagonal score lines 46, which meet or converge to a point at the score lines 39. From this point there is another score line transverse each of the flaps 41 and 43. The top portion is folded along the aforementioned score lines as is generally well known in the art to provide the stapled top portion 47, as shown in Figure 2. However, this top fold is distinguishable from the prior art by the addition thereto of the wall 19 and its sections A and B. This upper section B of the pouring spout section 19 folds inside the carton and over along the score line 20. When thus folded the upper section C of the pouring spout blank lines up with an opening 50 formed in the top wall 34 equal in size to the area of said section C. As the sides and top are folded together, the bottom flap panels 53, 54, 55 and 56 are also folded, lapped over and glued together. After this the entire carton is dipped in wax as is well known to the art.

Before the actual dispensing operation takes place, there is a seal tab 51 secured by the container material along the perforations 52 to a tongue 53 integral with a wall of the container mounted over the opening 50. This tab 51 is separable by the operator along perforations 52, which when pulled off leaves a depending tapered tongue 53. This tongue laps down over or under the arcuate edge 28 of the spout section C when it is closed and forms therewith a fluid closure seal, as shown in Figure 5. Also, the lower edge of the opening 50 is in line with the score line 17 of side wall 12 and serves as a steady fulcrum edge E at the score line 20 of upper section C of the spout blank.

Method of forming and folding the container and spout for operation

In making the present novel container and spout, a blank sheet is first cut out by a stencil pattern shaped for the blank. After this the score lines are marked on the blank, the flaps cut out, and then the opening 50, tab 51, and tongue forming perforations 52 are made. Following this the pouring spout is formed out of the material cut from the trapezoidal opening 22 into its final structural form as hereinbefore described.

The next step is to glue certain predetermined

parts and sections of the blank, so that when folded all glued surfaces are covered and so that no glue is applied to wing-like members 31 and 32 or the upper swinging section C and wing-like members 31 and 32 of the body part 24 of the spout blank. This selective gluing of the side of the spout wall 19 is accomplished by masking over the parts C, 31 and 32 and then coating the outer side of the remaining surface of panel 19, so that when it is folded the glue coated side presses against the inner surface of the wall 34 of the container. To provide a tight seal extra flaps 58 and 59 may be included in the form of panel 19. Glue is also applied to the inner face of bottom wall 53 and the outer faces of bottom walls 54, 55 and 56. Thus when folded on the usual former these glue coated parts are sealed together and the part C of the spout lines up back of the tab 51 in the opening 50 with the parts 31 and 32 flat but unglued on each side thereof.

The final step is to dip the glued container in wax to provide a leak proof container and to give added rigidity thereto.

Operation

The use of the container is probably obvious from the foregoing description, but briefly to use the same, tab 51 is pulled off along the perforations 52, thereby exposing the bottom of section C of the spout blank and leaving the cooperative sealing and guiding tongue 53.

Next the tongue is raised and the thumb nail engaged over the arcuate edge 28 of part C, whereupon the same is pulled forward out through opening 50. As this is done the wings 31 and 32 fold or hinge along the score lines 26 and 27 due to the pressure developed thereon by the side edges of the opening 50, until their rear top edges contact with the upper edge of the said opening in notches on either side of the tapered tongue 53. The tongue is tapered to serve as a pilot member for the wing-like members 31 and 32.

During this opening action no buckling or deforming of the wall 12 or 34 occurs, because all strain is taken up at the fulcrum edge E at the top of wall 12 and bottom of opening 50. The development of a rigid hinge point in a container of this type has long been sought without success. All rigid fulcrum points heretofore having been made in separate pieces or with more than two thicknesses.

Another embodiment of the present invention for use with the conventional glass milk bottle is illustrated in Figures 5 and 6 of the drawing and comprises upper and lower discs of cardboard 60 and 61 formed from an elongated folded over cardboard strip, not shown. These discs may be stamped out of the strip so that a small portion 63 of the folded portion serves as a connecting hinge.

Prior to formation of the discs or after they are cut depending upon the method of making practiced, the lower disc or fold portion is cut out to form an opening 64 with a tab 65 therein secured at one end by perforations 66. The perforations 66 define the tapered end of a tongue 67. Thus the tab 65 may be pulled off along the perforations 66, to thereby leave the tapered tongue in part of the opening 64.

In the opposed fold portion or lower disc 61 is stamped, cut or otherwise suitably formed a trapezoidal opening 68. The material stamped out from this opening is formed into a novel

pouring spout blank **69**. This blank comprises a rectangular body strip formed into two sections C' and D', a pair of wing-like members **71** and **72** attached to the section C' along score lines **73** and **74**, and right angled cut-out portions **75** and **76** on each side of the section D'.

The final assembly of the two discs **60** and **61** by gluing them together is done so that parts **71**, **72** and C' are free from any contact with a glued surface and are free to swing over the lower edge **75** of the opening **64** in disc **60**. This edge serves as a fulcrum point over which the dividing score line **76** between sections C' and D' may pivot. Thus the section D' is fixed as a part of the two discs, while section C' is free to swing out through the opening **64** over the edge **75** and the wing-like members **71** and **72** are automatically folded along the score lines **73** and **74** to form a pouring spout.

The top edge **77** of section C' may be curved to receive a fingernail to facilitate actuation of the spout, and the tapered tongue **67** is so shaped and positioned as to serve as a pilot member during the opening out of the spout and as a cooperating closure part when the section C' is pushed in flush with the plane surface of the disc **60** after each pouring operation.

Preferably after gluing the discs together as hereinbefore explained, the entire assembly in its finished cut out form is dipped into a molten wax or paraffin solution. This gives the spout portion added rigidity and prevents leakage and absorption of foreign materials and moisture. This is particularly advantageous for door step deliveries in rain or snow, as no moisture can seep in and the caps are very readily washed off due to the smooth finish of the wax.

While only two embodiments of the invention have been illustrated and described, various changes and modifications, which will now appear to those skilled in the art, may be made without departing from the scope of the invention. Reference is therefore to be had to the appended claim for a definition of the limits of the invention.

I claim:

The method of forming a blank for a liquid pouring spout and comprising the operation of cutting a sheet of material along the following straight lines: a straight line, along two equal straight lines each starting at an end of the first line and diverging from each other, along two colinear lines starting each from another end of the divergent lines and having adjacent ends spaced from one another and being parallel to the first line, along two second parallel lines each extending toward said first straight line from one of the spaced ends of the colinear lines and perpendicular thereto, along two diverging lines each starting at an end of one of the parallel lines and ending at one of the colinear lines and parallel to one of the first pair of diverging lines, thereby producing a pair of cut out portions of the shape of a right angled triangle; of scoring the sheet exterior to the figure bounded by the preceding cutting lines along two second colinear lines spaced at their adjacent ends and with said adjacent ends meeting said first pair of diverging lines, scoring within the figure on a line colinear with the first two score lines and through the ends of the parallel cutting lines nearest the first cutting line, and scoring along two parallel lines each colinear with one of the parallel cutting lines and perpendicular to the first score line, and of removing the cut-out portions of the shape of right angled triangles.

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