July 31, 1962 H. M. HILL 3,047,200

DISPENSING CONTAINER

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FIG_1

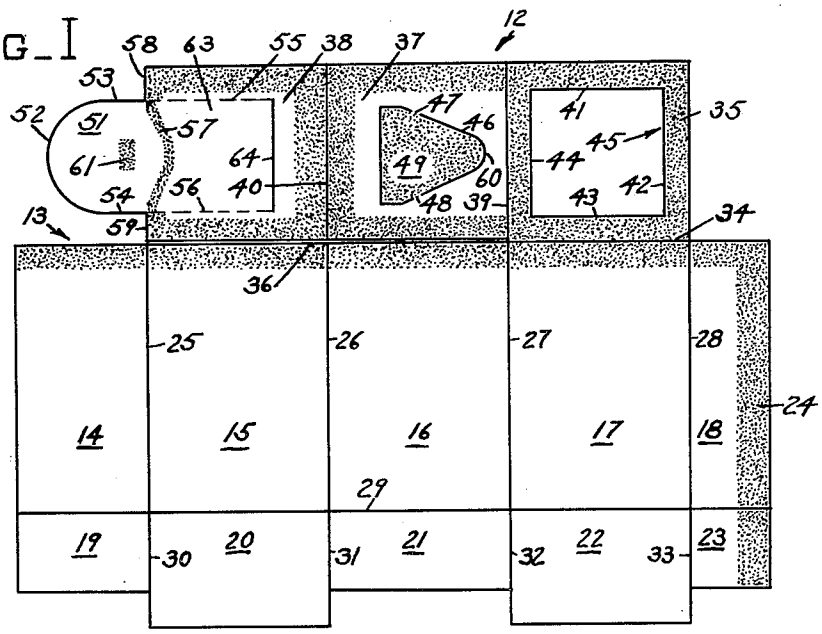

FIG_2

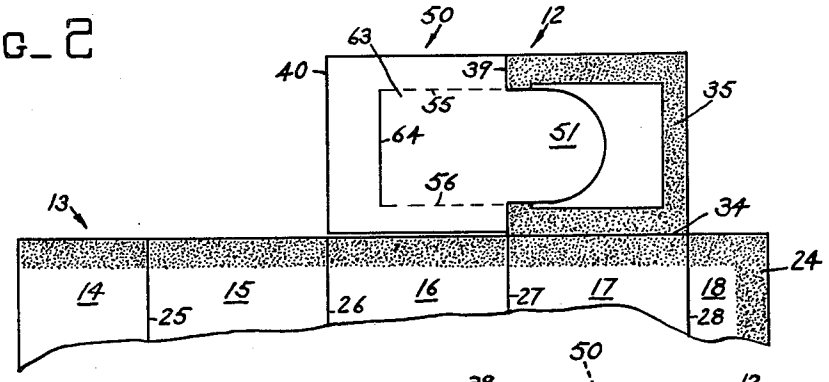

FIG_3

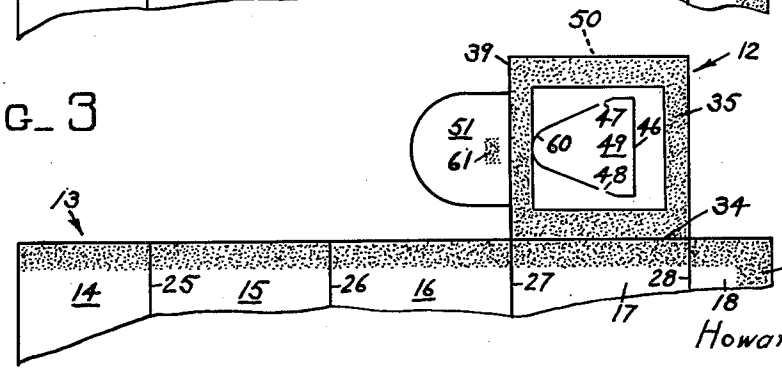

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FIG. 4

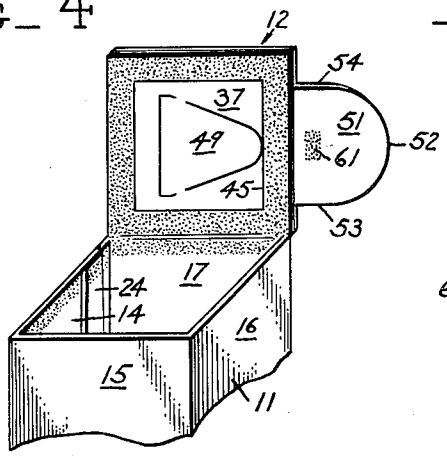

FIG. 5

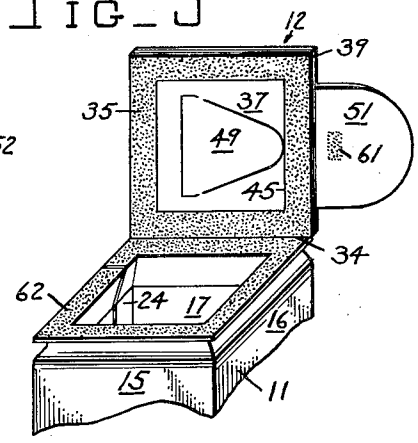

FIG. 6

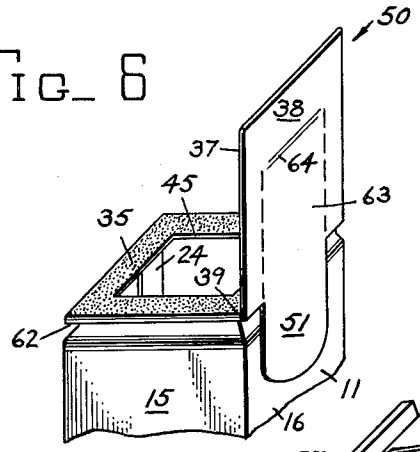

FIG. 7

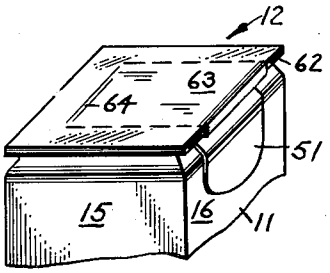

FIG. 8

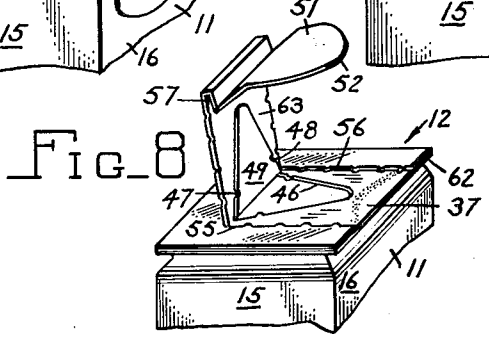

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FIG_9

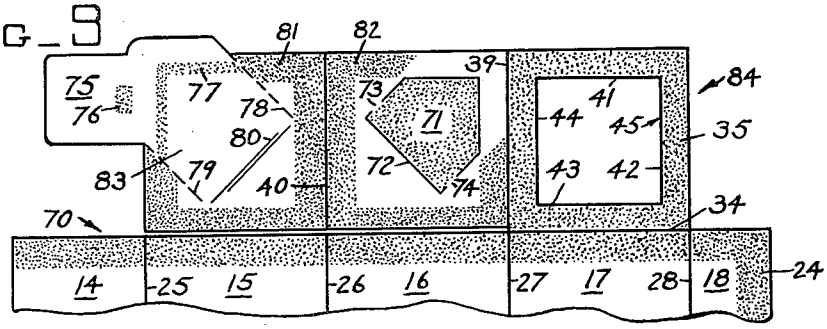


FIG_10

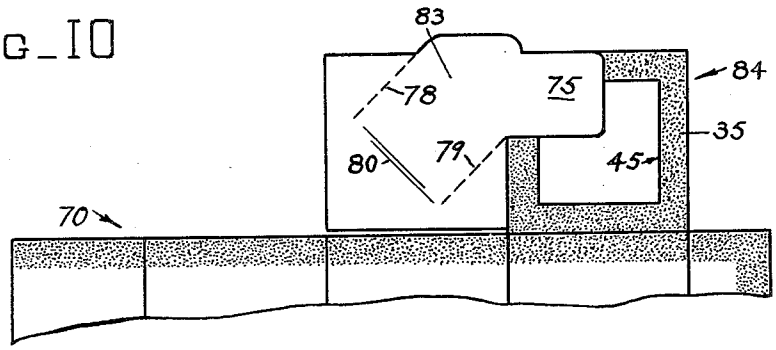


FIG_11

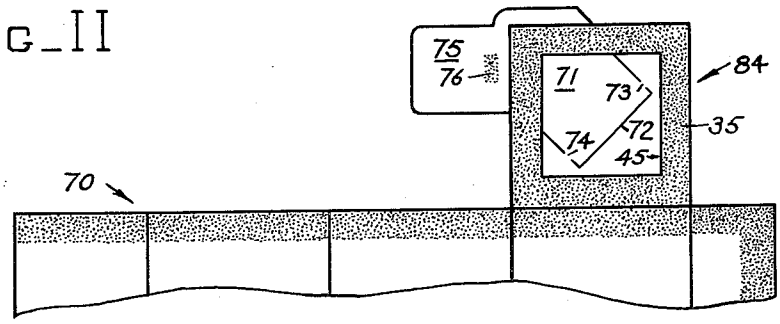


FIG_12

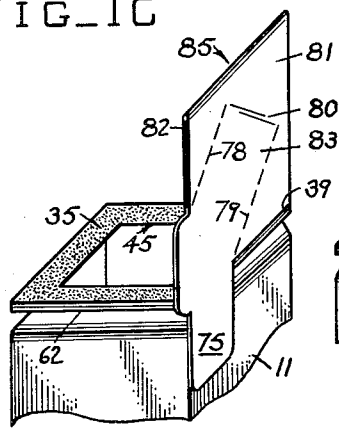


FIG_14

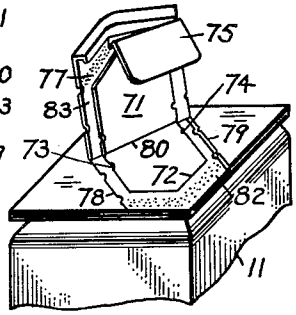
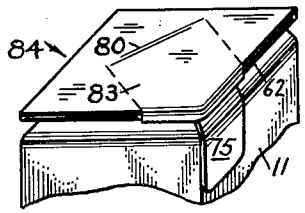


FIG_13



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United States Patent Office

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DISPENSING CONTAINER

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Filed Jan. 11, 1961, Ser. No. 82,029
11 Claims. (Cl. 229—17)

This invention relates to fibre containers for the packaging and delivery of liquids such as milk and has particular reference to a dispensing container made from a single piece of fibre stock and having a dispensing opening in its top completely sealed at the point of manufacture of the blank.

An object of the invention is provision of a one piece blank from which a dispensing container can easily be made up in a dairy because of the simplification of assembly operations.

Another object of the invention is to provide an opening for filling the container that is only slightly less in size than the horizontal cross section of the container body.

Another object of the invention is to provide a completely sealed dispensing opening for a container, the pouring surface and lip of which are protected at all times.

A further object of the invention is the provision of a dispensing opening for a container with a rupturable seal, the elements of which are completed in the blank manufacturing plant and the seal is therefore easily inspected for proper opening.

Numerous other objects and advantages of the invention may be apparent as it is better understood from the following description which, taken in connection with the accompanying drawings, discloses a preferred embodiment thereof.

Referring to the drawings:

FIGURE 1 is a plan view of the blank from which the container is made.

FIGURE 2 is a plan view of the blank of FIGURE 1 after a first folding and gluing operation on the single elongated flap to complete the two-ply dispensing closure with part of the blank broken away.

FIGURE 3 is a plan view after a second folding operation to bring all three plys of the top closure to coincide along their edges with part of the blank broken away.

FIGURE 4 is a perspective view of the upper end of the container formed into a side seamed tube with top closure members standing erect and part of the container broken away.

FIGURE 5 is a perspective view of the upper end of the container with end seam flange formed and top closure members standing erect and part of the container broken away.

FIGURE 6 is a perspective view of the upper end of the container with the reinforcing ply of the top closure member folded down and glued to the end seam flange of the container and the two-ply partially rupturable top closure member standing vertically and part of the container broken away, the container now ready for filling.

FIGURE 7 is a perspective view of the upper end of the completed and filled container ready for delivery to the ultimate consumer, the lower part of the container broken away.

FIGURE 8 is a perspective view of the upper end of the finished and filled container with the rupturable seal of the top closure broken and the dispensing opening uncovered ready for the contents of the container to be dispensed, the lower part of the container broken away.

FIGURE 9 is a plan view of a blank showing a modified form which permits dispensing of the contents of the container at a corner instead of at the mid-point of one side with part of the blank broken away.

FIGURE 10 is a plan view of the modified form of blank of FIGURE 9 after the first folding and gluing operation with part of the blank broken away.

FIGURE 11 is a plan view of the modified form of blank of FIGURE 9 after the second folding operation with part of the blank broken away.

FIGURE 12 is a perspective view of the container made from the modified form of blank of FIGURE 9 with reinforcing ply of the triple-ply top closure member folded down and glued to the end seam flange of the container and the two-ply partially rupturable top closure member standing vertically and part of the container broken away.

FIGURE 13 is a perspective view of the upper end of a finished and filled container made from the modified form of blank of FIGURE 9 with part of the container broken away.

FIGURE 14 is a perspective view of the upper end of a finished and filled container made from the modified form of blank of FIGURE 9 with the rupturable seal of the top closure member broken and the dispensing opening uncovered ready for the contents of the container to be dispensed, the lower part of the container broken away.

As a preferred embodiment of the instant invention FIGURES 1 to 8 inclusive of the drawings illustrate a container of rectangular cross section, and the blank from which it is made, comprising a fibre tubular body **11** closed at its upper end with a flat triple-ply fibre filling and dispensing top closure **12**. The bottom end of the container is closed by infolding integral flaps which are not a part of this invention. FIGURES 9 through 14 inclusive illustrate a second form of the invention made from a modified form of body blank.

Referring to FIG. 1 blank **13** is divided by vertical score lines **25**, **26**, **27**, and **28** into five panels **14**, **15**, **16**, **17**, and **18** which when folded and glued at side seam **24** make up the side walls of body **11** (FIG. 4). A horizontal score line **29** divides end flaps **19**, **20**, **21**, **22**, and **23** from body panels **14**, **15**, **16**, **17**, and **18**; and cut lines **30**, **31**, **32**, and **33** extending from the lower extremity of blank **11** to score line **29** separate end flaps **19**, **20**, **21**, **22**, and **23** from each other. A short horizontal score line **34** extending from vertical score line **27** to score line **28** defines a hinge line between panel **17** of body blank **11** and reinforcing ply **35** of triple-ply dispensing top closure **12** all of which is contained in a single elongated flap. Cut line **36** extending from vertical score line **25** to score line **27** separates top plies **37** and **38** from panels **15** and **16** of body blank **11**. Short vertical scores **39** and **40** define lines about which top plies **37** and **38** are folded to form triple-ply dispensing top closure **12** (FIGS. 2 and 3). Cut lines **41**, **42**, **43**, and **44** in reinforcing ply **35** define a large and substantially full opening **45** in the reinforcing ply through which the container may be filled (FIGS. 1 and 6). Dispensing opening **46** (FIG. 1) of substantially triangular shape is closed by substantially triangular plug **49** which is severed from inner ply **37** of the double ply closure member **50** consisting of plies **37** and **38** except at lugs **47** and **48** which hold triangular plug **49** until these lugs are ruptured at the time it is wished to dispense the contents of the container. Outer ply **38** of the two-ply closure member **50** has integral tear tab **51** attached to its extreme left hand edge (FIGS. 1 and 6), the outline of the tear tab **51** being defined by semicircle **52** and straight lines **53** and **54** which latter lead directly into weakened score lines **55** and **56** respectively and determine the area of outer ply **38** partially ruptured to uncover dispensing opening **46** (FIG. 8). The surface of plug **49** facing outer ply **38** when in folded position is coated with adhesive which attaches it to the inner surface of outer ply **38** and consequently when tear tab **51** is lifted to open the container, plug **49** is with-

drawn from dispensing opening **46** after rupture of lugs **47** and **48**.

The inner surface of outer ply **38** (FIG. 1) has a narrow glue stripe **57** extending angularly downward from the intersection of edge **58** and weakened score **55** of outer ply **38** thence parallel to edge **58** and thence again angularly to the intersection of edge **59** and weakened score line **56** to form an easily ruptured seal between the partially rupturable portion of outer ply **38** and inner ply **37** between weakened score lines **55** and **56** and between pouring corner **60** of dispensing opening **46** and score line **39**. The inner surface of tear tab **51** has a small spot of glue **61** located so as to contact the under surface of end seam flange **62** when in final assembled position (FIGS. 1 and 7).

Preferably the container is made up by first folding outer ply **38** along score line **40** and gluing all areas contacting inner ply **37**. The resulting partially completed blank is shown in FIG. 2. Herein lies one of the important and valuable features of this invention since in this operation all gluing of the rupturable dispensing two-ply closure member **50** is completed and never again disturbed until the final consumer of the contents of the container wishes to dispense them. As a result, continuous manufacturing plant inspection of the functioning of the rupturable dispensing closure member is feasible through the destruction of samples taken from the manufacturing line at regular intervals. In the next operation the two-ply dispensing closure member **50** is folded about score line **39** so that the outlines of all three plies of the triple-ply top closure **12** coincide excpt that tear tab **51** overhangs. This is merely a folding operation, no gluing being done, and reinforcing ply **35** may be hinged away from two ply dispensing closure member **50** (FIG. 3).

This disposition of the several plies of the top closure facilitates handling of the blank through succeeding operations since all plies of the top closure are located above one edge of one body panel.

The next operation in the formation of the container is the side seam gluing at **24** (FIG. 4). This gluing may be done in a folding box machine in which case the body would be a flattened envelope, or the gluing may be done over a mandrel having the cross section of the inside of the body. In this case the finished body would appear as in FIG. 4 with bottom flaps (not shown) extending downward from the lower edge of the body and the triple-ply dispensing top closure **12** extending upward from one edge of one body side wall. At this time with the body carried on a mandrel the bottom flaps are folded and glued to make up a bottom closure.

Referring to FIG. 5, the next operation performed on the container body is a necking-in of the body peripherally near the upper edge to form end seam flange **62**. At this time triple-ply top closure **12** stands vertically and now forms a right angle with one edge of end seam flange **62** (FIG. 5).

The next operation (FIG. 6) brings the container to the point in its manufacture where it is ready to be filled. The manufacturing operation consists of a folding down of reinforcing ply **35** about score line **34** (FIG. 5) and gluing it to peripheral end seam flange **62**. At the same time two-ply partially rupturable dispensing top closure member **50** hinges about score line **39** and takes the position of FIG. 6 with tear tab **51** lying alongside one body side wall and the two-ply closure member **50** standing vertically. Preferably the stock from which the container is made is treated with a waterproofing material and since all joints are tightly made the container may now be filled with a liquid through large opening **45** in reinforcing ply **35**. Herein lies another advantage of the invention i.e., a large filling opening through which liquid such as milk may be rapidly introduced into the container without the foaming attending the operation of filling when openings and filling tubes are of small cross sectional area. The container is now closed by hinging down two-ply partially rupturable dispensing top closure member **50** and sealing inner ply **37** to reinforcing ply **35** by means of adhesive. After this final closure has been made tear tab **51** is formed under peripheral end seam flange **62** (FIG. 7) and attached to the under side of end seam flange **62** by means of a spot of adhesive **61** (FIG. 5).

The foregoing description of the manufacture and use of the container of this invention assumes that the container is to be completely fabricated at the filling point. This is by no means necessary as the container might just as well be made at one point and shipped to another for filling. In this case the container shipped to the filling plant would look much like FIG. 7 and the two-ply partially rupturable dispensing top closure member **50** would be sealed to reinforcing ply **35** by means of a low melting point adhesive which by the application of a mild heat at the filling plant would permit hinging top closure member **50** about score line **39** to expose opening **45** for filling. From this point filling and closing would be as before.

To dispense the contents of the container tear tab **51** (FIG. 7) is grasped between thumb and index finger and pulled outwardly rupturing the glue seal between spot **61** (FIG. 5) and the underside of peripheral end seam flange **62** (FIG. 7). Pulling upwardly will now rupture in sequence narrow glue stripe **57**, weakened scores **55** and **56**, and plug retaining lugs **47** and **48** allowing tear strip **63** carrying plug **49** to hinge about score line **64** exposing dispensing opening **46** (FIG. 8) and permitting the contents of the container to be poured over the protected pouring surfaces of inner ply **37**. To reclose the container tear tab **51** is snapped back under peripheral end seam flange **62**, and plug **49** is pressed back into dispensing opening **46**.

FIGURES 9 through 14 discloses a container made from a modified form of blank **70** which when made up (FIG. 13) is substantially the same as the container of FIG. 7 but which pours from one corner instead of from the mid point of one side.

In the manufacture of a container of this latter modified form (FIGS. 9–14) the body blank has a triple-ply partially rupturable dispensing top closure **84** (FIG. 11) formed by folding and gluing a single elongated flap attached to the upper edge of one body side wall. The resulting container has a tear tab **75** attached to partially rupturable outer ply **81** close to one corner of the triple-ply dispensing top closure. Tear tab **75** is attached to tear strip **83** set off from the balance of outer ply **81** by weakened score lines **78** and **79** and score line **80**.

The operations required to make the container of FIGURES 9–14 are the same as those required to make the container of FIGURES 1–8. Filling of this container is through large filling opening **45** as before (FIG. 12). After filling, the two-ply partially rupturable top closure member **85** is hinged about score line **39**, the line of connection between reinforcing ply **35** and inner ply **82**, and a glued joint is made between the corresponding surfaces of these latter two parts. Tear tab **75** is then formed under flange **62** and is attached at glue spot **76** to the underside or flange **62**. The container then takes on the appearance of FIG. 13. To dispense the contents of the container tear tab **75** is grasped between the thumb and index finger and pulled outwardly loosening glue spot **76**. Continued outward and upward tension on tear tab **75** ruptures in sequence narrow glue stripe **77**, weakened scores **78** and **79**, and lugs **73** and **74** allowing tear strip **83** carrying plug **71** to be hinged back about score line **80** exposing dispensing opening **72** to permit pouring the contents of the container over the protected surfaces of inner ply **82** (FIG. 14). To reclose the container, tear tab **75** is snapped back under end seam flange **62** and plug **71** is pressed back into dispensing opening **72**.

It is thought that the invention and most of its advantages and novel features will be understood from the

foregoing description and drawings and it will be apparent that changes may be made in the construction and arrangement of the parts without departing from the spirit and scope of the invention, the forms hereinbefore described representing a preferred embodiment thereof.

I claim:

1. A container for liquids comprising a tubular fibre body closed at its lower end, three side walls of said body terminating at their upper edges in a necked-in area and outwardly extending end seam flanges, the fourth side wall terminating in a necked-in area and an outwardly extending end seam flange and integral therewith a triple-ply dispensing top closure including a lower reinforcing ply, with a filling opening, adhesively attached to said end seam flanges and an inner ply integral with said lower ply and adhesively attached thereto, said inner ply having a dispensing opening therein, and an outer ply integral with said inner ply and adhesively attached thereto, said outer ply having a tear tab and weakened scores defining a partially rupturable tear strip therein covering said dispensing opening.

2. The container of claim 1 in which the tear tab is fastened to the underside of the end seam flange by a spot of glue.

3. The container of claim 1 in which the material cut from the dispensing opening is allowed to remain in the opening as a plug.

4. The container of claim 1 in which the material is cut from the dispensing opening throughout its outline except at two narrow spots providing lugs retaining the plug in said dispensing opening.

5. The container of claim 1 in which the plug for the dispensing opening is glued to the underside of the tear strip of the outer ply.

6. A container for liquids comprising a tubular fibre body closed at its lower end and terminating at its upper end in a necked-in area and outwardly extending end seam flange and integral therewith a triple-ply dispensing top closure adhesively attached thereto including a lower reinforcing ply with a filling opening and a two-ply closure member hinged to said lower reinforcing ply and having a dispensing opening in the inner ply of said two-ply closure member and a partially rupturable tear strip and tear tab in the outer ply of said two-ply closure member covering said dispensing opening, said tear tab folded under said end seam flange.

7. The container of claim 6 in which the tear tab is fastened to the underside of the end seam flange by a spot of glue.

8. A container for liquids comprising a tubular fibre body of retangular cross section closed at its lower end and terminating at its upper end in a necked-in area and outwardly extending peripheral end seam flange, a single flap integral with said end seam flange at the upper end of one side wall of said tubular body said single flap elongated in the direction of the periphery of said body and scored in two positions dividing said single elongated flap into three sections substantially equal in area folded about said scores producing a triple-ply dispensing top closure, the lower ply having a filling opening therein and adhesively attached to said peripheral end seam flange, the inner ply adhesively attached to said lower ply and having a dispensing opening therein, the outer ply adhesively attached to said inner ply and having a tear strip aligned with and covering said dispensing opening, and a tear tab integral with said tear strip.

9. In a container for liquids comprising a bottom closure and four side walls necked-in at their upper ends and terminating in a peripheral end seam flange, a triple-ply dispensing top closure having a lower reinforcing ply, a two-ply closure member hingeable about its juncture with said lower reinforcing ply exposing a filling opening, said two-ply closure member having a dispensing opening in one ply and a tear strip and tear tab in the second ply, said tear strip being partially rupturable along weakened score lines to expose said dispensing opening.

10. In a container for liquids comprising a bottom closure and four side walls necked-in at their upper ends, three of said side walls terminating at their upper ends in peripheral end seam flanges and the fourth of said side walls terminating in an end seam flange and an integral triple-ply dispensing top closure having a lower reinforcing ply, a two-ply closure member hingable about its juncture with said lower reinforcing ply exposing a filling opening, said two-ply closure member having a dispensing opening in one ply and a tear strip and tear tab in the second ply, said tear strip being partially rupturable along weakened score lines to expose said dispensing opening.

11. A container of rectangular cross section comprising a cut and scored sheet of fibre providing four side walls terminating at their upper ends in outwardly extending end seam flanges, a plurality of bottom closure flaps, and a single elongated flap integral with the upper edge of one side wall and hingedly connected thereto, said single elongated flap forming a triple-ply dispensing top closure including a lower reinforcing ply adhesively secured to the upper edges of said side walls, an inner ply hingedly attached to said lower reinforcing ply and having a dispensing opening therein, and an outer ply having a tear tab and weakened scores defining a partially rupturable tear strip therein covering said dispensing opening.

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