

Sept. 9, 1952

G. C. REID ET AL

2,609,985

CONTAINER WITH FLAT TOP AND INTEGRAL OVERCAP

Filed May 22, 1947

2 SHEETS—SHEET 1

Fig 1

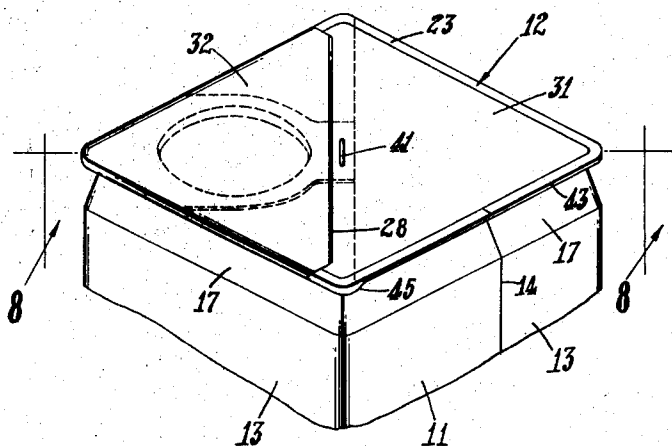


Fig 2

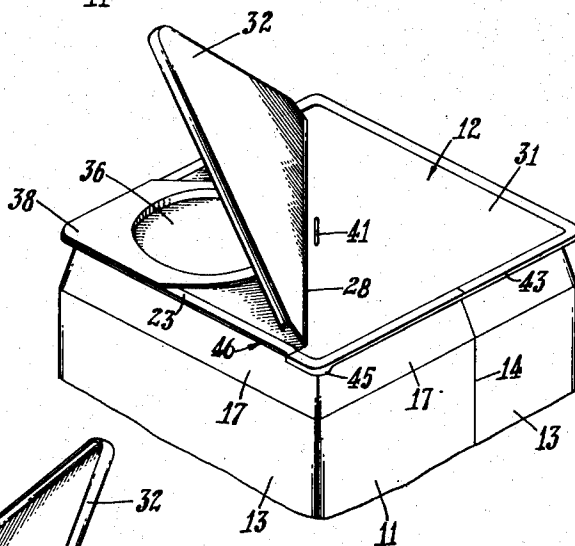
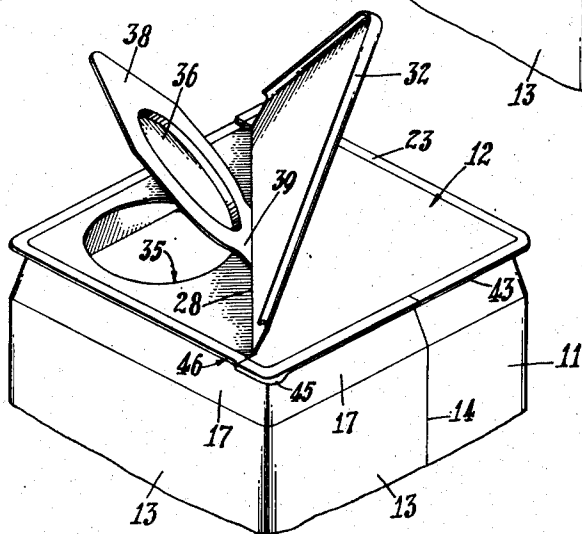


Fig 3



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2 SHEETS—SHEET 2

Fig 4

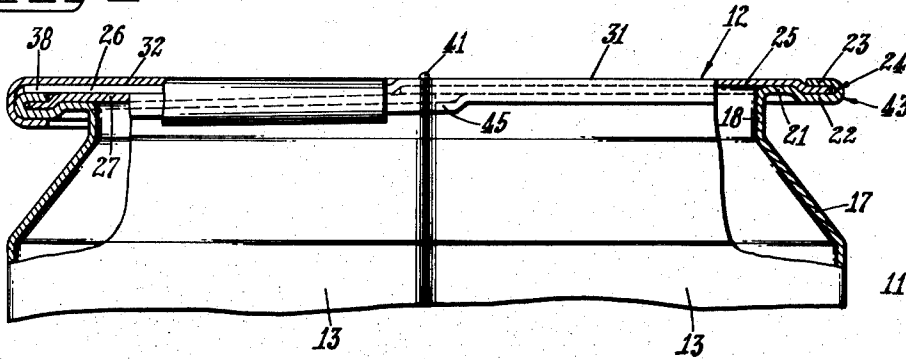


Fig 6

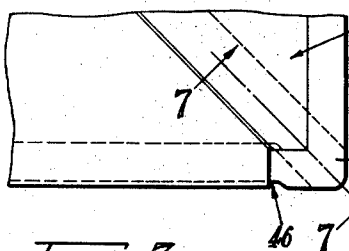


Fig 5

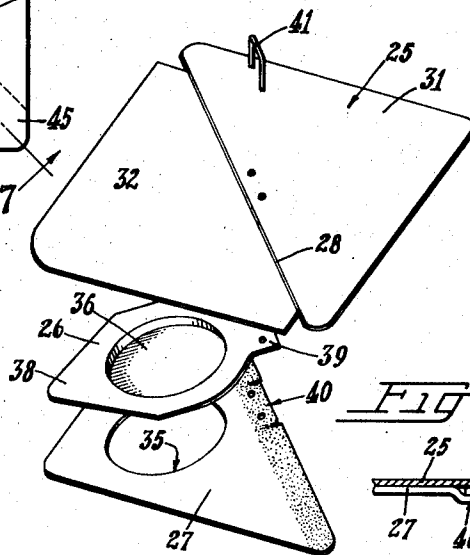


Fig 7

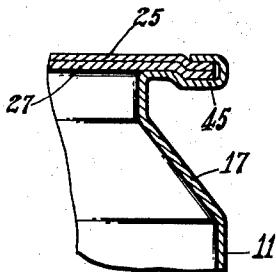


Fig 9

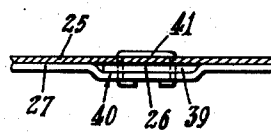
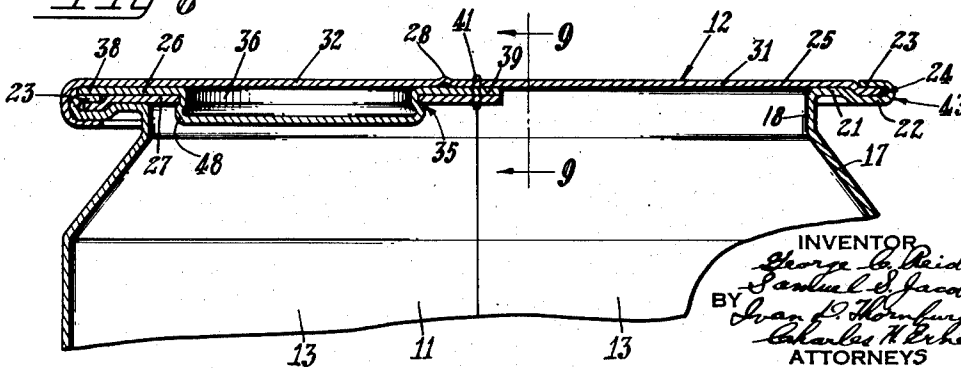


Fig 8



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UNITED STATES PATENT OFFICE

2,609,985

CONTAINER WITH FLAT TOP AND
INTEGRAL OVERCAP

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Application May 22, 1947, Serial No. 749,805

3 Claims. (Cl. 229—7)

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The present invention relates to containers for the packaging and delivery of liquids, such as milk, fruit juices and the like and has particular reference to a sanitary fibre container of an improved construction embodying a reclosure element and having a smooth, unindented top which prevents the accumulation or entrapment of foreign liquids or other foreign matter and which protects the reclosure element, the pouring surfaces and the interior of the container from contamination.

The invention constitutes an improvement upon the container disclosed in United States Patent 2,085,979 issued July 6, 1937 to John M. Hothersall, and is especially an improvement on the top closure construction thereof. Reference is here made to our copending United States application Serial Number 749,806 filed May 22, 1947, issued on May 7, 1950 as United States Patent No. 2,499,416, on Container with Pouring Throat and Connecting Dispensing Opening.

The invention contemplates a sanitary composite top construction for a container which includes a partial end member having a filling and dispensing opening equipped with a reclosure element and protected by a superimposed flat, smooth container top member, the partial end member and a portion of the top member being secured to the container body by interfolded marginal seam portions of the partial end and top members and the body, a portion of the top member functioning as a permanent protective overcap and extending over the partial end member and reclosure element and the end seams thereadjacent for protecting them against contamination and being hingeable for exposing these parts for filling and dispensing the contents of the container.

An object of the invention is the provision of a sanitary fibre container for milk and other liquids wherein the container top is substantially flat and smooth and free of any indentations, countersinks or other places where foreign liquids or other foreign matter may accumulate or enter the container either directly or by capillary attraction or may collect on the reclosure element or pouring surfaces for protecting the reclosure element, the pouring surfaces and the interior of the container as well as the contents from contamination.

Another object is the provision of such a container wherein the pouring area of the container is covered at all times excepting when in use and is completely protected against airborne or liquid-borne contamination.

Another object is the provision of such a container wherein the top closure is as strong and as sturdy as the rest of the container and is liquid tight, provides a reclosure which is easy for

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the consumer to open and does not need a separate and expensive overcap.

Another object is the provision of such a container which may be readily manufactured at high speed rates of production on existing machines and with existing materials and with relative economy and which may be readily filled at dairies on existing machines and without any additional materials to be supplied by the dairies; the closure being a composite end closure which is applied to the container as a unitary structure at the factory where the container is made.

Numerous other objects and advantages of the invention will 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:

Fig. 1 is a perspective view of the upper end of a sealed container embodying the instant invention;

Figs. 2 and 3 are views similar to Fig. 1 and showing the container in different stages of opening as for filling and dispensing;

Fig. 4 is an enlarged elevational view of the upper end of the container as viewed in Fig. 1, with parts broken away and parts shown in section;

Fig. 5 is a perspective view of the different members and elements which make up a composite top or end closure for the container, the members and elements being shown in superimposed or exploded position preparatory to assembling;

Fig. 6 is an enlarged fragmentary top plan view of the container and showing details of construction of one corner thereof;

Fig. 7 is a sectional view taken substantially along the line 7—7 in Fig. 6, with parts broken away;

Fig. 8 is an enlarged sectional view taken substantially along a vertical plane indicated by the lines 8—8 in Fig. 1, with parts broken away; and

Fig. 9 is a sectional view taken substantially along the line 9—9 in Fig. 8, with parts broken away.

As a preferred embodiment of the instant invention the drawings illustrate a rectangular container comprising a fibre tubular body 11 (Fig. 1) closed at its upper end with a sanitary, flat, fibre composite end or top closure 12. The bottom end of the container may be closed in any suitable manner, such as for example, as disclosed in the above mentioned Hothersall patent.

The body 11 is formed preferably from a single sheet or blank of fibrous material folded at right angles to provide four side walls 13 and having the side edges of the sheet overlapped to form a vertical lap side seam 14. The overlapped seam edges preferably are secured with a suit-

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able adhesive so that a liquid tight side seam results.

The body side walls 13 adjacent their upper ends are formed with an inwardly extending oblique wall section 17 (Figs. 4 and 8) which merges into a short vertical wall section 18 defining a mouth for the container. The terminal end of the short vertical wall section 18 merges into an outwardly extending peripheral, flat horizontal shoulder 21 and a continuing and surrounding offset ledge 22 disposed in a horizontal plane slightly below the plane of the shoulder 21. The outer peripheral edge portion of the offset ledge 22 curves upwardly and thence extends inwardly as a bentback flange 23 disposed in spaced and parallel relation to the offset ledge 22 and terminates adjacent and in spaced relation to the shoulder 21 and thus provides a U-shaped receiving channel 24 for marginal edge portions of the top closure 12.

The composite top closure 12 preferably is a three member assembly comprising an outer top member 25 (Fig. 5), a hingeable closure element 26, and an inner top member or filling and dispensing member 27. In general, the outer top member 25 is rectangular in configuration and is flat and unindented, being free of any indentations or recesses which could collect foreign liquids or other material. This top is formed with a diagonally disposed score or crease line 28, which divides the member into two triangular sections of nearly equal size, a stationary section 31 and a hingeable section or overcap 32 which may be hinged upwardly at the score or crease line 28. The outer marginal edge portion of the hingeable section 32 preferably extends beyond the edges of the stationary section 31 for securing the hinge section in place on the container as will be hereinafter more fully explained.

The dispensing member 27 preferably is triangular in shape and is substantially of the same size as the hingeable section 32 of the top member 25, the formation of the peripheral edges of the dispensing member corresponding to those of the stationary section 31 of the top member. Adjacent its outer corner the dispensing member is formed with a circular filling and dispensing opening 35.

In the composite assembly the dispensing member 27 is disposed adjacent and indirectly under the hingeable or overcap section 32 of the top member 25, with its outer edges aligned with the peripheral edges of the stationary section 31 and with its diagonal marginal edge portion underlapping the stationary section 31, beyond the crease line 28 as best shown in Figs. 5 and 8. The underlapping diagonal margin of the dispensing member 27 is adhesively and permanently secured to the stationary section 31 of the top member 25 in a liquid tight joint. Thus the dispensing member 27 and the stationary section 31 of the top member 25 secured thereto form a rectangular end assembly having the hingeable section 32 overlying and sanitarily protecting the dispensing member 27 and functioning as a permanently available overcap.

The closure or reclosure element 26 is interposed between the dispensing member 27 and the hingeable section 32 of the top member 25 and is formed with a countersunk friction plug 36 which fits snugly in and seals the dispensing opening 35. This element is formed with an opening tab 38 and an oppositely disposed hinge lug 39. The hinge lug 39 is disposed in a depression 40 (see Figs. 5 and 9) formed in the

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diagonal margin of the dispensing member 27 and is adhesively secured in place to the dispensing member and to the stationary section 31 of the top member 25 in a liquid tight joint. The three members may be further secured together by a staple 41 which extends from the top member down through all the other members and is bent back on itself against the lower surface of the dispensing member as best shown in Fig. 9. The closure or reclosure element 26 may be a separate member as described or may be integral with the dispensing member 27, in which latter case it is formed from the same sheet of raw material and folded back upon itself.

The composite end closure 12 is assembled as a unitary structure prior to assembly with the container body 11 and embodies all of the elements necessary for producing a sanitary top for a milk container which meets all of the requirements of the sanitary codes of State health departments.

When applied to the container body 11, the composite end closure 12 covers the entire mouth of the container as best shown in Figs. 2, 3 and 9. When the closure is in place on the container it rests on the flat shoulders 21 and the marginal edge portions of the stationary section 31 of the top member 25 are disposed in the receiving channel formed by the body ledge 22 and flange 23 along two adjoining sides of the container and are adhesively secured in place in a permanent liquid tight offset joint or end seam 43. The outer periphery of this seam preferably is in vertical alignment with the outer surface of the side walls of the container body 11. In such an offset seam, the top surface of the flange 23 is flush with the top surface of the top member 25 so that no recess is formed between these parts at the joint and therefore the collection of liquids or other foreign matter is prevented.

In the same manner, the marginal edge portions of the dispensing member 27 are embodied in the receiving channel between the ledge 22 and flange 23 along the opposite two adjoining sides of the container and are adhesively and permanently secured in place in a liquid tight joint or end seam which is a continuation of the seam 43. This continuation of the seam 43 is disposed in a horizontal plane below the top member by a distance equal to the thickness of the material of the dispensing member so that both the hingeable and the stationary sections of the top member remain in the same horizontal plane. This change in planes in the seam takes place adjacent the ends of the diagonal crease line 28 in the top member 25 and is clearly shown as a step 45 in the seam as best illustrated in Fig. 4. At this step, two thickness of stock, that of the top member 25 and the dispensing member 27 are embodied in the end seam 43 as shown in Fig. 7. In these parts of the seam 43, the top surface of the dispensing member 27 is flush with the outer surface of the flange 23 so that no recess is formed in this portion of the closure.

When the container is closed, the opening tab 38 of the reclosure 26 overlies the adjacent portion of the flange 23 of the end seam 43 as shown in Figs. 2 and 8 and the hingeable section 32 of the top member 25 extends over the reclosure member, with the marginal edge portions of the hingeable section curled over and under the seam 43 (Fig. 8). This curled over edge portion of the hingeable section 32 retains the section in place during handling of the container.

Provision is made for guarding the curled over edge portion of the hingeable section 32 of the top member 25 from accidental dislodgment during handling of the container. For this purpose the end seam 43 adjacent the hingeable section 32 is offset inwardly, as indicated by the numeral 46 in Figs. 2 and 6, by a distance slightly greater than the thickness of the curled edge of the hingeable section so that this curled edge is disposed within the general outline of the top closure and is spaced inwardly of the side walls of the container body so that it is not engageable by an adjacent container when a plurality of containers are placed side by side as during shipment and storage.

The entire container and composite end closure preferably is coated inside and outside with paraffin wax or other suitable coating material for rendering them liquid and moisture proof.

With such a composite end closure adhesively secured to the body in the end seam 43 the end closure is at least as strong as the other parts of the container and tends to make the container more rigid so that it readily stands up under rough handling. The unindented flat top member 25 sheds liquid or other foreign matter and thereby protects the dispensing member 27, the reclosure member 26, the pouring surfaces around the pouring opening 35 and on the end seam 43, and the interior of the container against this foreign matter and maintains them in the sterile condition under which the container is made, during shipment to the dairy for filling.

At the dairy, the hingeable section 32 of the top member 25 and the reclosure 26 are opened as shown in Figs. 2 and 3 and the container is filled. While the container is open as during the filling operation or during dispensing as when the container is tilted into the usual pouring position, the hingeable section 32 serves as a shield for preventing any matter on the top member from entering the container or from falling onto the sterile surfaces thereunder. After filling the container is reclosed. At this time the friction plug 36 is expanded to form a holding bead 48 as shown in Fig. 8.

It is thought that the invention and many of its attendant advantages will be understood from the foregoing description, and it will be apparent that various changes may be made in the form, construction and arrangement of the parts without departing from the spirit and scope of the invention or sacrificing all of its material advantages, the form hereinbefore described being merely a preferred embodiment thereof.

We claim:

1. A container for liquids comprising a tubular body having a substantially flat composite end member secured thereto in a laterally projecting end seam, said composite end member comprising an outer imperforate top member having a fixed portion embodied in said end seam and an integrally formed hingeable protective over-cap portion having a peripheral flange folded over and beneath an opposed part of said projecting seam, said end member further comprising a fixed inner dispensing member disposed beneath said hingeable portion of the top member and secured to the fixed portion thereof, said dispensing member being embodied at a portion of its periphery in said opposed part of said seam and having a dispensing opening therein, and a closure ele-

ment having a friction plug thereon disposed between said top member overcap portion and said dispensing member and hingedly secured to one of said members for removably closing the dispensing opening in said fixed inner dispensing member.

2. A container for liquids comprising a rectangular body having a substantially flat composite end member secured thereto in a laterally projecting end seam having an inwardly offset portion, said composite end member comprising a substantially flat imperforate outer top member having a fixed portion of triangular configuration embodied in said end seam on two adjacent sides of the container and an integrally formed hingeable protective over-cap portion also of triangular configuration having two adjacent peripheral edges embodied in a flange folded over and beneath the opposed inwardly offset part of said laterally projecting seam on the remaining adjacent container sides, said end member further comprising a fixed inner dispensing member disposed beneath said hingeable portion of the top member and secured to the fixed portion thereof, two adjacent edges of said dispensing member being included in said inwardly offset portion of said seam and having a dispensing opening therein, and a hinge closure element having a friction plug thereon disposed between said top member overcap portion and said dispensing member and hingedly secured to one of said members for removably closing the dispensing opening in said fixed inner dispensing member.

3. A fibre container for liquids comprising a tubular body of rectangular cross section having a substantially flat rectangular composite end member of multiple thickness secured thereto in a laterally projecting folded end seam, said seam having an offset portion disposed longitudinally inwardly of the container body, said composite end member comprising a fixed inner dispensing member of triangular configuration having two adjacent peripheral edges embodied in said offset portion of said end seam and having a dispensing opening therein, an outer imperforate top member of rectangular configuration having a substantially triangular fixed portion embodied in said end seam on two adjacent sides of the container and an integrally formed hingeable protective overcap portion having a peripheral flange folded over and beneath said inwardly offset portion of said laterally projecting end seam on the two remaining adjacent sides of the container, and a hinge closure element having a friction plug thereon disposed between said outer top member overcap portion and said inner dispensing member and hingedly secured thereto for removably closing and dispensing opening in said fixed inner dispensing member.

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