

Feb. 10, 1942.

J. M. HOTHERSALL

2,272,203

CONTAINER

Filed June 9, 1938

2 Sheets-Sheet 1

Fig 1

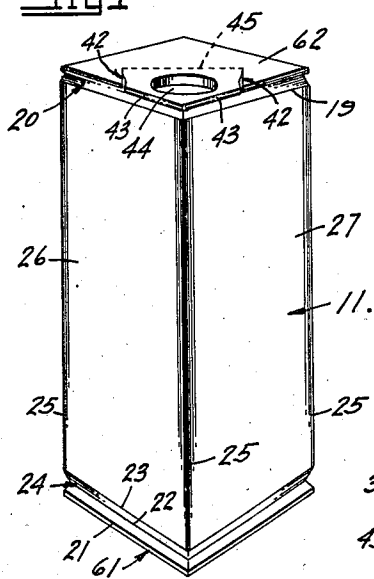


Fig 2

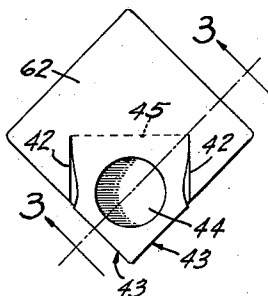


Fig 3

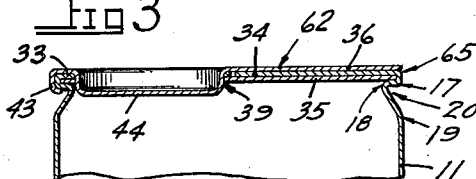


Fig 6

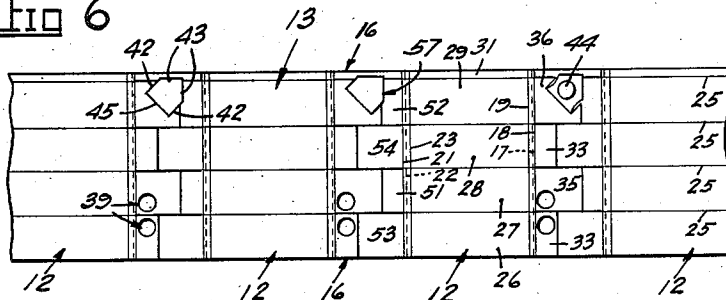


Fig 4

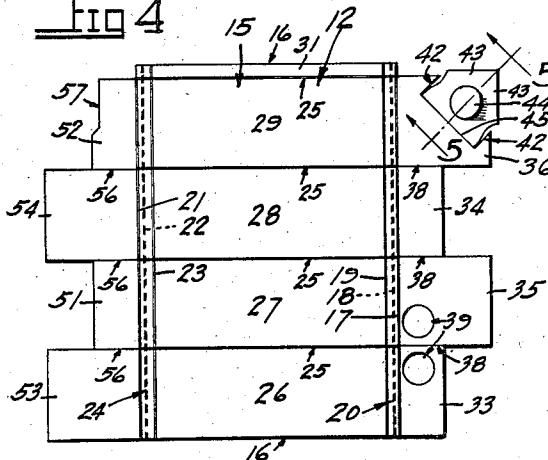
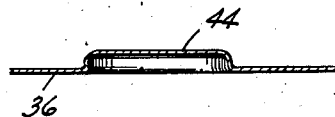


Fig 5



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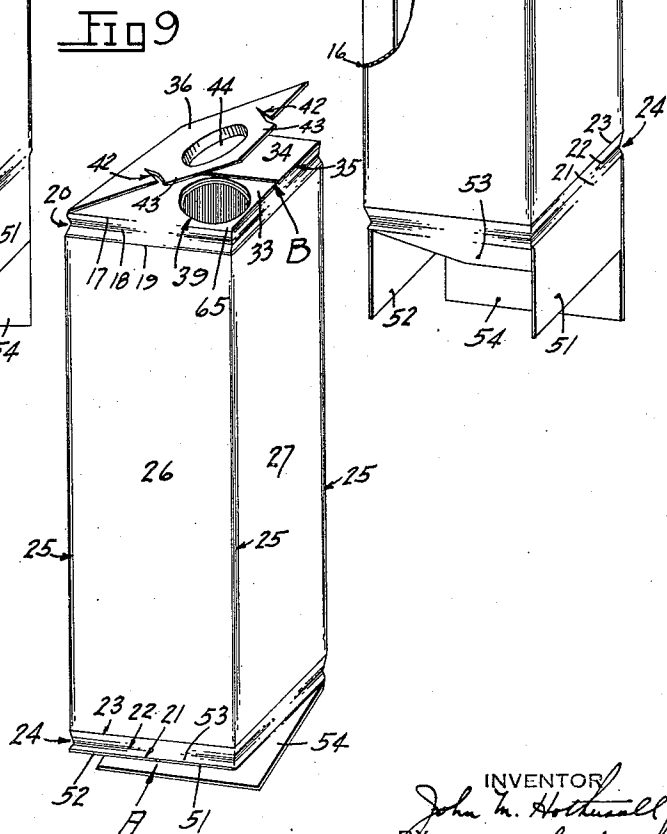
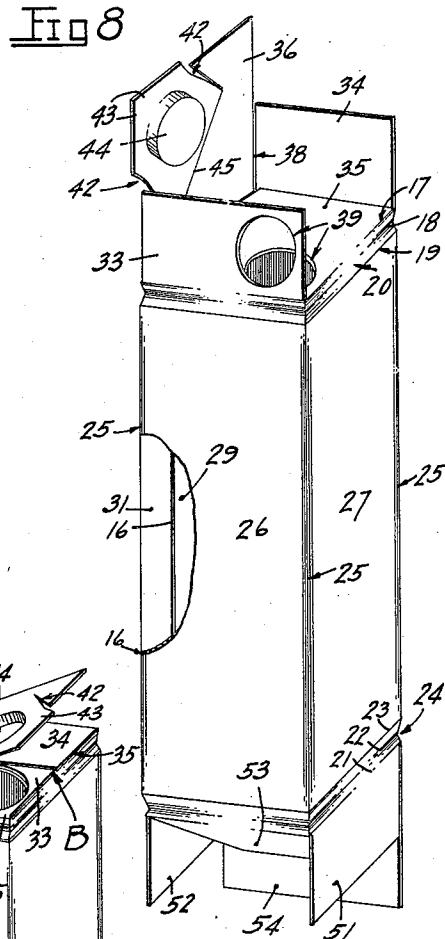
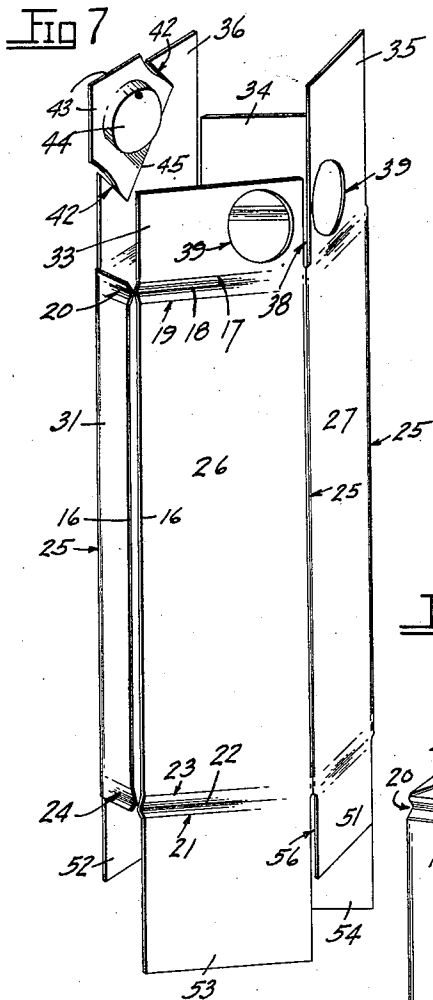
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2,272,203

CONTAINER

Filed June 9, 1938

2 Sheets-Sheet 2



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2,272,203

CONTAINER

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Application June 9, 1938, Serial No. 212,838

1 Claim. (Cl. 229—17)

The present invention relates to containers for liquids and the like substances and has particular reference to a container which is made in one piece from a blank of fibrous material or the like, the container made from the blank including an integral bottom end, an integral top end, and a friction plug closure for sealing the latter.

An object of the invention is the provision of a fibre container having an integral friction plug closure element and made from one piece of material.

Another object is the provision of such a one-piece container wherein the closure element included in the blank for the container is formed with sufficient material to overlap and protect the pouring lip or surface of the container.

Another object is the provision of such a one-piece container formed with reinforced sections disposed adjacent its ends which provide a non-collapsible structure permitting slight outward and inward bellows movement of the body wall to insure against vertical collapse due to longitudinal strains applied at the ends of the container.

Another object is the provision of a container of this character wherein the various container parts embodied in the one piece blank from which the container is made, are arranged so that such blanks may be cut from a continuous web of material with a minimum of waste.

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:

Figure 1 is a perspective view of a sealed one piece container embodying the instant invention;

Fig. 2 is a top plan view of the container;

Fig. 3 is an enlarged sectional view of the upper end of the container as taken substantially along the line 3—3 in Fig. 2;

Fig. 4 is a plan view of a blank from which the one piece container illustrated in Fig. 1 is made, the view being drawn at a reduced scale;

Fig. 5 is an enlarged fragmentary sectional view taken substantially along the line 5—5 in Fig. 4;

Fig. 6 is a reduced scale view of a web of fibrous material showing how the blanks for the container may be cut out with substantially no waste; and

Figs. 7, 8 and 9 are perspective views showing

the container in various stages of formation, Fig. 7 showing the partially formed container after the blank has been folded to form the body portion of the container, Fig. 8 illustrating the body portion completed and the side seam secured and the first folded container end portions of the blank in final position, and Fig. 9 showing the folding of the last folded end portions of the blank as it is bent into final position to complete the container.

As a preferred embodiment of the invention the drawings illustrate a tubular container 11 (Fig. 1) of square cross section which is made from a single one piece blank 12 (Fig. 4) preferably of fibrous material cut from a web 13 (Fig. 6).

The blank 12 is of irregular shape and includes a rectangular body portion 15 which is bounded on two opposed sides by straight raw edges 16 which are preferably the edges of the web from which the blank is cut. Transversely disposed crease or score lines 17, 18, 19 are formed in the body portion 15 adjacent one end and similar score lines 21, 22, 23 are formed adjacent the other end.

The raw edges 16 extend along what will be the length or height of the finished container. The first set of the three crease or score lines 17, 18 and 19 extend at right angles to the raw edges 16 along what will be the top edge of the finished container. Score lines 17 and 19 are disposed in the upper surface of the blank as viewed in Fig. 4 and score line 18 is disposed in the lower surface. The material of the blank between the score lines 17, 19 is bent upwardly in an inverted V-shaped trough 20 with the score line 18 at the apex of the trough.

In a similar manner the second set of crease or score lines 21, 22, 23 are also disposed at right angles to the raw edges 16 along what will be the bottom edge of the finished container. Score lines 21, 23 are formed in the upper surface of the blank and score line 22 in the lower surface. The material of the blank between the score lines 21, 23 is also bent upwardly in an inverted V-shaped trough 24 with the score line 22 at the apex thereof.

The body portion 15 of the blank is also provided with a plurality of spaced and parallel longitudinal crease or score lines 25 formed in the upper surface of the blank as viewed in Fig. 4. These score lines extend parallel with the raw edges 16 and occur at the corners of the container where they set off four side walls 26, 27,

28, 29 and a side seam portion 31 located adjacent the side wall 29 as shown in Fig. 4.

At what will be the top of the container, i. e., adjacent the transverse score line 17, the blank 12 is formed with a pair of short flaps 33, 34 and a pair of long flaps 35, 36 which will constitute the top closure members of the finished container. The short flaps are substantially one half the length of the long flaps. These flaps are set apart by slits 38 which extend along the outer longitudinal edge of the flap and terminate at the transverse score line 17. Flaps 33, 35 are provided with dispensing holes 39 which are disposed in adjacent inner corners of the flaps as shown in Fig. 4. Flap 34 is left blank.

One corner of the flap 36, preferably the upper right as viewed in Figs. 4 and 6, is cut through with a pair of spaced and parallel diagonal slits 42. The inner ends of these slits are connected by a score line 45. The corner material of the blank between these slits extends beyond the normal boundaries of the flap and provides a two sided angularly disposed edge section 43 at the flap corner.

In this corner and between the diagonal slits 42 the flap 36 is formed with an upwardly bent friction plug 44 (see also Fig. 5) which is struck out of the material of the blank flap and which is substantially of the same diameter as the dispensing holes 39. The forming of this plug draws in part of the material of the corner and hence widens the diagonal slits 42 into the form shown in Fig. 4 and also shown at the right in Fig. 6.

At what will be the bottom end of the container, i. e., adjacent the transverse score line 21, the blank is formed with a pair of short flaps 51, 52 and a pair of longer flaps 53, 54, which constitute the bottom closure members of the finished container. Flaps 51, 52 are substantially one half the length of flaps 53, 54. The flaps for the bottom are disposed in the reverse order to that of the top closure flaps 33, 34, 35, 36. This arrangement provides for cutting adjacent blanks from the web 13 with no waste at the ends as will be seen by reference to Fig. 6. The bottom closure flaps are blank, that is, without holes, and are separated by longitudinal dividing slits 56 which extend along the adjacent edges of the flaps and which terminate at the score line 21.

Flap 52 is formed with a cut-out 57 adjacent its outer transverse edge. By referring to Fig. 6 it will be noticed that this cut-out part is the result of cutting the blank 12 along one side of the edge section 43. The other side of the edge section 43 is cut out adjacent the edge of the web where it is in a continuation of the body side seam portion 31. The small remainder of this continuation after cutting each blank 12 from the web is the only portion of the web which is wasted.

Forming of the container from the blank 12 just described in detail is effected by folding the blank along certain crease or score lines. The first fold is along the longitudinal score lines 25, this bringing the raw edges 16 close to each other as shown in Fig. 7. In this position the side seam portion 31 is adjacent the outer edge of the side wall 26.

The side seam portion 31 is tucked under the side wall 26 in overlapping relationship and is secured in place in any suitable manner as by adhesive or the like applied to the overlapped parts as shown in Fig. 8. The container body at this stage is tubular in form and square in cross

section and the top and bottom closure flaps extend straight out as continuations of the body side walls (Figs. 7 and 8).

The bottom end of the body is next closed by first folding the long closure flap 53 up into place bending it along the score line 21 as shown at the lower end of Fig. 8. This flap entirely blocks off the lower end of the body. The two short or half flaps 51, 52 are then bent along the score lines 21 into one plane with adjacent edges abutting, the flaps then overlapping the positioned flap 53, as shown at A in Fig. 9. The long and short flaps may next be secured together by a suitable adhesive. The combined area of the two short flaps thus completely covers the flap 53.

The remaining flap 54 is then bent inwardly along its crease or score line 21 into a position overlapping the folded short flaps 51, 52 as shown in Fig. 9 and is secured in place by adhesive or the like. This completes the folding action for the bottom and thereby provides a composite multiple thickness bottom 61 (Fig. 1) for the container, this bottom being located adjacent the reinforced trough or rigid truss 24 in the container body.

In a similar manner the top closure flaps are folded inwardly into overlapping relation to provide a top 62 (Fig. 1) for the container. The long top flap 35 is first folded along its upper score line 17, as shown in Fig. 8. The two short or half flaps 33, 34 are then folded down on top of the positioned long flap and are secured to the latter by adhesive or the like, the outer edges of the flaps abutting as shown at B in Fig. 9. This folding also takes place along the score line 17. Folding of the short flap 33 brings its dispensing hole 39 into register with the hole 39 in flap 35 thus providing one common dispensing opening which communicates with the interior of the container.

Flap 36 is finally folded along its score line 17 by being bent down over the top of the positioned half flaps 33, 34. Only certain portions of the last flap 36 are sealed to the adjacent flaps. The friction plug portion of the flap, i. e., that portion within the slits 42 and the score line 45 is not sealed with adhesive but is left free as this is to be readily folded back along the connecting score line 45 when the container is opened for dispensing the contents of the container.

Folding of the final flap 36 into its sealing position locates the friction plug 44 within the dispensing opening 39 and closes this opening as shown in Fig. 3. If desired, the side walls of the plug may be expanded after insertion into the dispensing opening so that they will tightly engage under the folded flaps and more securely fasten the plug in place.

With the flap 36 and plug 44 in closing position, the edge section 43 adjacent the plug corner of the flap extends over or projects beyond what will become the pouring lip (marked 65 in Fig. 3) of the container. The pouring lip is thus fully protected and will not be exposed until the friction plug portion of the top flap is raised in opening the container.

It is this construction of one piece container with reinforcing trusses at each end which provides a non-collapsible structure permitting a slight outward and inward bellows movement of the body wall adjacent the bottom 61 and the top 62 when a shock is imparted to the container. These trusses relieve those kind of

strains on the ends of the body which might otherwise cause leakage.

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.

I claim:

A one-piece container of fibre or the like material for liquids and other substances, comprising in combination, a tubular body, a plurality of closure flaps formed integrally with said body at each end thereof and adapted to be folded inwardly and in interengaged position thereby

providing sealed top and bottom closures for the container, certain of said flaps adjacent the upper end of the body having dispensing holes which cooperate in folded position to provide a single dispensing opening, and another of said flaps having a friction plug closure formed as an integral part thereof, and closing said dispensing opening when in folded position, parts of said friction plug flap having its plug section set off by slits joined at their ends by a line of crease which also define an unsecured area in the flap, said friction plug flap also having protruding edge sections which extend over the pouring lip of the container when the friction plug is in sealing position thereby protecting said lip from contamination prior to opening of the container.

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