Oct. 2, 1945. H. F. WATERS 2,385,898

SNAP-DOWN BOTTOM, FLAT-FOLDED PAPER-BOARD CONTAINER

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Fig. 1.

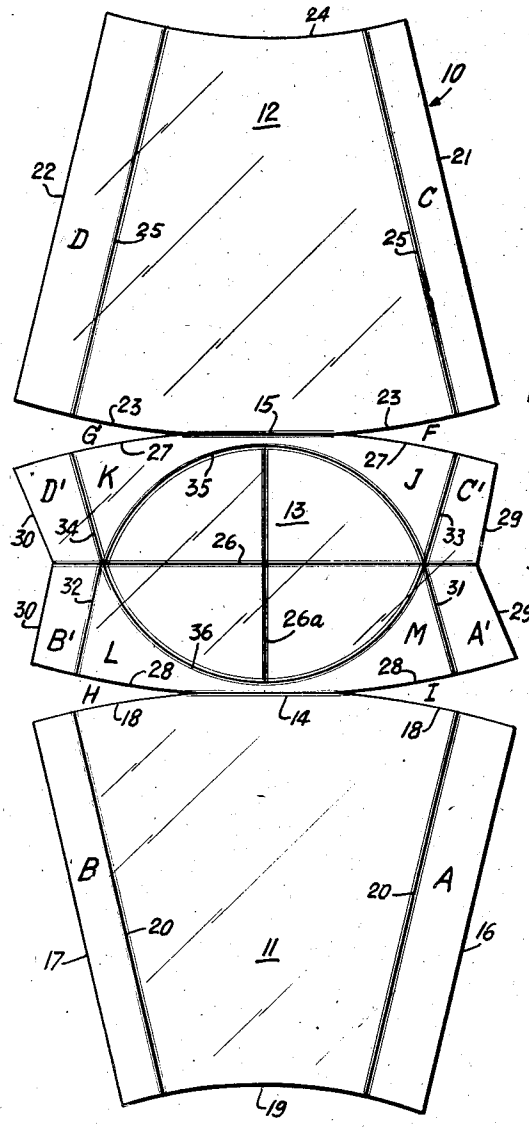
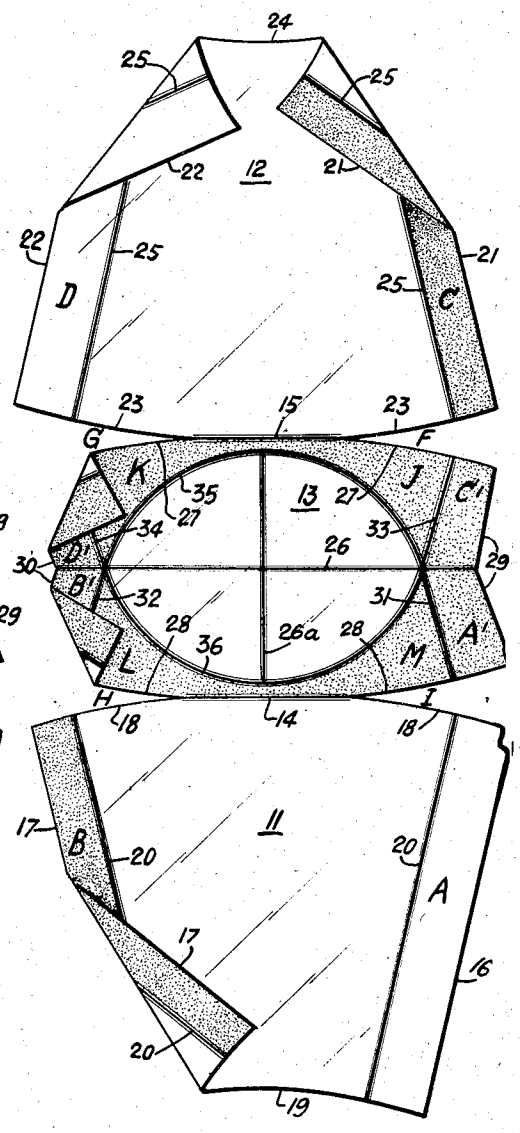


Fig. 2.



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Fig. 3.

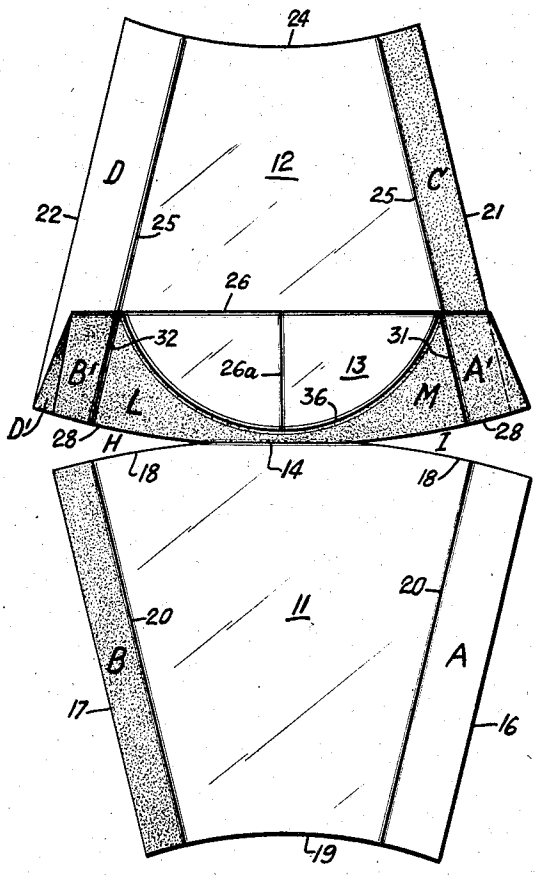


Fig. 4.

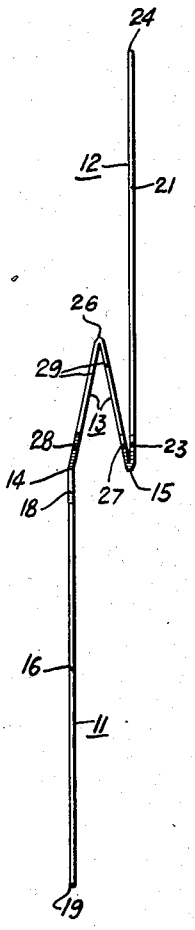
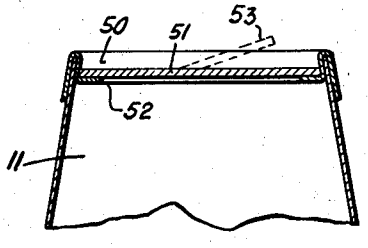


Fig. 11.



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Fig. 5.

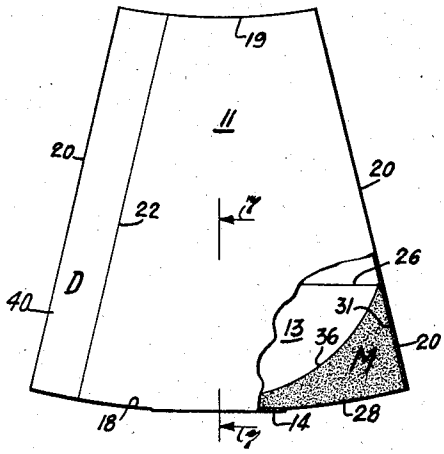


Fig. 8.

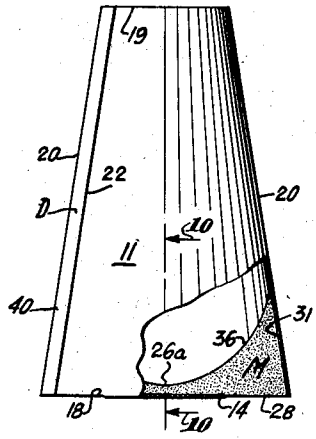


Fig. 6.



Fig. 9.

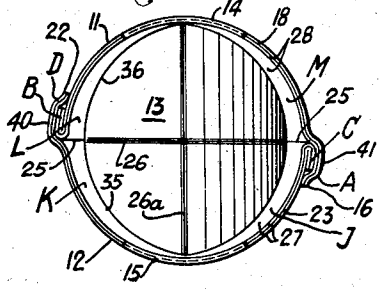


Fig. 7.

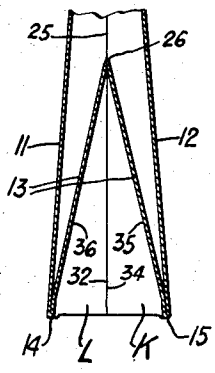
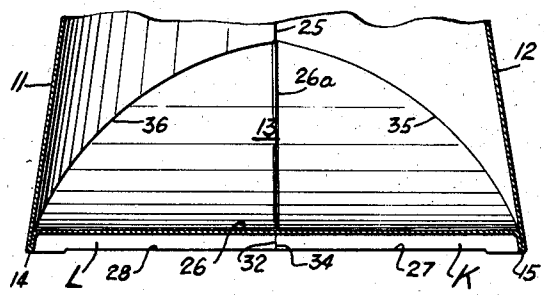


Fig. 10.



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UNITED STATES PATENT OFFICE

2,385,898

SNAP-DOWN BOTTOM, FLAT-FOLDED PAPERBOARD CONTAINER

Harry F. Waters, New York, N. Y.

Application June 24, 1943, Serial No. 492,107

7 Claims. (Cl. 229—16)

This invention relates to improvements in paper-board containers, and more particularly to flat-folded containers which can be snapped-down or erected into open filling condition. More particularly my novel containers are directed to specially treated containers adapted for packaging liquid products, such as milk, and which are flat-foldable for shipment from manufacturer to milk distributor or other user.

Hitherto, paper-board containers for milk, oysters, and other liquid food products or wet-packed food products, have been made of paraffined paper-board and the like in various shapes. These containers have been required to be delivered to users in completed form, entailing considerable cost in shipping and storage.

In my prior Patent 2,232,088, issued February 18, 1941, I have disclosed a paper-board container erectable from flat-folded form by folding the bottom inwardly and upwardly in a so-called snap-up bottom construction.

I have now found that an improved paper-board container which may be shipped in the form of a flat envelope, may be provided suitable for packaging of liquids, semi-liquids, oils, or greases, the novel container being characterized by fold lines so defined therein that a self-supporting hollow container of predetermined configuration may be formed therefrom solely by the operation of folding the envelope on the lines defined therein, said envelope being erectable into use position by snapping the folded bottom downwardly into place.

These and other features of novelty of my invention will be described in the accompanying specification, and illustrated in the drawings, certain preferred features being shown by way of example only, for, since the underlying principles may be incorporated in other paper-board structures, it is not intended to be limited to the forms here shown, except as such limitations are clearly imposed by the appended claims.

In the drawings, like numerals refer to similar parts throughout the several views, of which

Fig. 1 is a plan view of a paper-board blank for making conical containers;

Fig. 2 is a view similar to Fig. 1 showing the gluing pattern for the conical blank;

Fig. 3 is a plan view showing the initial step of adhering the parts according to the glue plan of Fig. 2;

Fig. 4 is a side elevation of the blank of Fig. 3 showing the method of folding same;

Fig. 5 is an elevation partly in broken section showing the completion of the folding up step of Figs. 3 and 4;

Fig. 6 is a cross-section of the flat-folded conical structure of Fig. 5 showing the fin seams at the edges of the flat-folded container;

Fig. 7 is a vertical section of the bottom of the container of Fig. 5, taken on lines 7—7;

Fig. 8 is a view similar to Fig. 5 showing the container in erected form;

Fig. 9 is a bottom view of the erected container of Fig. 8;

Fig. 10 is a vertical section taken on lines 10—10 of Fig. 8;

Fig. 11 is a vertical section of the top of the container of Fig. 8 showing a skirted cap in place.

Referring now to the drawings, and more particularly to Figs. 1 to 10, there is shown the method of fabricating a conical container in flat-foldable form and with a snap-down bottom spaced from the edge to form a false bottom. The blank 10, shown in Fig. 1, comprises front and back wall sections 11, 12 and a center or bottom section 13. The sections 11, 12 are continuous with section 13 and separated therefrom by score lines 14, 15. Segments or wall section 11 is generally conical in configuration having tapered side walls 16, 17, a concave bottom 18, and a convexed top 19. The panel 11 is provided with score lines 20 parallel to the edges 16, 17 and spaced therefrom a sufficient distance to serve as gluing tabs or panels. These tabs are designated A and B for purposes of convenience. The panel 12 is symmetrical with panel 11, being in fact a mirror image thereof. The taping edges 21, 22 form the sides of the blank and a curvilinear bottom 23 and top 24 are adapted to mate with sections 18 and 19 of panel 11. Score lines 25 are parallel to edges 21, 22 and define gluing sections or panels C, D. The central panel section 13 has a central transverse score line 26, curvilinear edges 27, 28 forming with score lines 15, 14 continuous arcuate segments. Side edges 29, 30 are angularly disposed with respect to transverse fold line 26, and spaced score lines 31, 32, 33, 34 are formed in the blank parallel to the said edges. It will be seen that four arcuate cut-outs, F, G, H, I are formed by the curvilinear edges 23, 27 and 18, 28. The panel 13 is provided further with a pair of symmetrical arcuate score lines 35, 36 meeting at the junction points of transverse score line 26, and side score lines 31—33, 32—34. The score line 35, 36 define with the edges of panel 13 gluing segments designated for convenience by J, K, L, M. A vertical fold line or score line 26a may desirably be formed in panel 13, and cen-

trally of fold line 26. It is to be noted that the panel set off by the fold lines 31, 32, 33, 34 and fold line 26 correspond in the latter dimensions to the gluing panels A, B, C, D, and are designated A^1, B^1, C^1, D^1.

By the provision of cut-out segments F, G, H, I, the blank is so conformed as to insure a flat bottom when the carton blank is folded and erected.

Turning now to Fig. 2, it will be noted that the narrower panels B and C are severally glued on both sides, while panels A and D remain unglued. In the bottom panel 13 segments A^1, B^1, C^1, D^1 are glued above the line while segments J, K, L, M, are glued only on the inner face of the panel. Adhesive used may be heat-sealable plastic or water-proof glues depending on the material which is to be packaged. To prepare the glue panel and form same into flat-folded conical containers, panel 13 is folded up on fold line 15 and folded on itself about fold line 26, as shown in Figs. 3 and 4. The segment of panel 13, including gluing panels C^1, J, K and D^1 is pressed flat against panel 12 so that fold lines 25—35 are in register and abutting as are fold lines 25—34. Panel 11 is thereupon folded upwardly on hinged line 14 so as to bring flaps A, B into registry with flaps C, D respectively, and the edges 16, 17 thereof into registry with the edges 21, 22 of panel 12. This operation forces gluing panels A^1, M, L, B^1 into engagement with the aligned cooperating sections of panel 11. When this has been accomplished, panel D and associated panel B are folded over onto the face of panel 11 to form a fin seam 40, the corresponding seam 41 formed by folding panels A and C over onto the back of panel 12. It is to be noted that flaps A and D will be secured to the panels or faces 11, 12 by any suitable adhesive or the like.

The flat-folded container formed, as indicated above, may be erected by squeezing edges inwardly causing the center panel 13 to snap downwardly locking the wall 11, 12 in place in fixed position. Due to the spacing of arcuate fold lines 35, 36 from transverse fold lines 14, 15 the container is provided with a false bottom standing up from the rim or edge formed by fold lines 14, 15 and associated rim sections 18, 23. The container, as shown in Fig. 11 may have a skirted cap 50 applied thereover, and held in place by a disc 51. The cap 50 may have a central aperture 52, and disc 51 may be provided with a lifting tab 53 to remove the disc 51 and expose the pouring hole 52.

It will now be seen, and with particular reference to the showings of Figs. 1 to 11, that a flat-foldable conical container of paper-board can be made with a snap-down bottom by suitably configuring a paper-board blank cutting out central segments to permit curvilinear bottom portions, and scoring the central panels to provide snap-down segments serving to erect and hold the container in erected, conical shape. The container may be made of paraffine paper-board or of paper-board provided with inner facings of liquid-tight material, including plastic surfacings, heat fusible or not, of rubber hydrochloride, vinyl resin co-polymers and various other plastic materials in film form, or as coatings sprayed or flowed in place on the inner surfaces of the finished containers.

Having now particularly described and ascertained the nature of my said invention, and in what manner the same is to be performed, I declare that what I claim is:

1. A paperboard blank for conical hollow containers, said blank comprising symmetrical wall sections spaced by an integral bottom section, said bottom section having a transverse medial fold line perpendicular to the central longitudinal axis of the panel sections, the panel sections having tapering sides with flaring arcuate base, the bottom panel having arcuate edges adapted to mate and register with the bottom edges of the panel sections upon folding, the bottom panel having arcuate score lines defining parabolae with the central longitudinal axis, the sides of the bottom panel forming abtuse angles and adapted to register with the edges of juxtaposed panels upon folding the blank into flat-folded container form.

2. A flat-folded conical paperboard container capable of being erected into hollow self-supporting formation, comprising a tripartite sheet of material having a central bottom panel section and attached body sections on either side of the bottom, the said sheet having a central longitudinal axis and the body sections having angular sides flaring outwardly adjacent the point of junction with the bottom panel, cut-out sections between the bottom panel and the body panels, and defining mating arcuate edges therefor, the bottom panel having a medial fold line perpendicular to the longitudinal axis, spaced fold lines parallel to the several panel edges.

3. A flat-folded conical paperboard container capable of being erected into hollow self-supporting formation, comprising a tripartite sheet of material having a central bottom panel section and attached body sections on either side of the bottom, the said sheet having a central longitudinal axis and the body sections having angular sides flaring outwardly adjacent the point of junction with the bottom panel, cut-out sections between the bottom panel and the body panels, and defining mating arcuate edges therefor, the bottom panel having a medial fold line perpendicular to the longitudinal axis, spaced fold lines parallel to the several panel edges, the said lateral score lines in each panel defining edge flaps of differential widths, and the so formed flaps of common width being diagonally disposed with respect to each other.

4. A curvilinear snap-down bottomed container in flat form capable of being erected into hollow formation, comprising a sheet of material bellows-folded upon itself to give a transverse bottom bellows fold and having the opposite edges of its opposed faces in the body section secured together in face to face relation to provide a fin seam container having an open-mouth, the edges of the transverse bellows fold forming fins merging into said first named side fins, the said bottom structure on erection forming snap-down curvilinear base.

5. Container according to claim 4 having fused seams.

6. Container construction according to claim 4 in which the seamed sides and bottom are folded over onto the body of the container and secured thereto.

7. Container according to claim 4 having a continuous inner surface.

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