

March 31, 1964

G. MEYER-JAGENBERG
LIQUID-TIGHT CONTAINER OF PAPER, CARDBOARD
AND LIKE CARTON-FORMING MATERIALS

3,127,082

Filed Jan. 22, 1962

2 Sheets-Sheet 1

Fig. 1

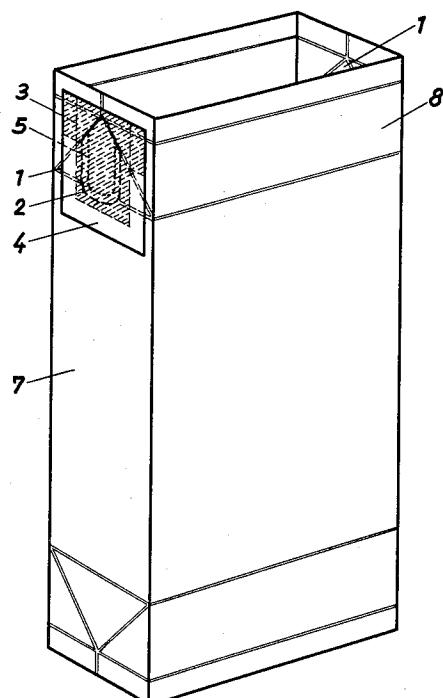


Fig. 2

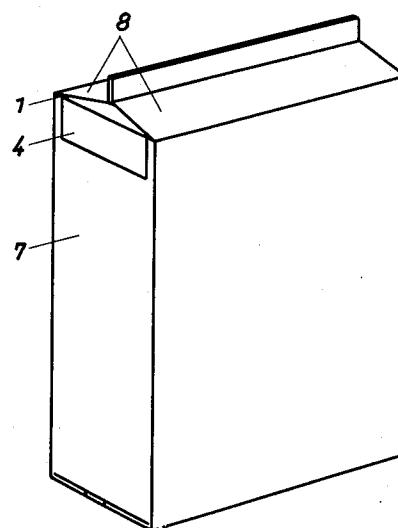
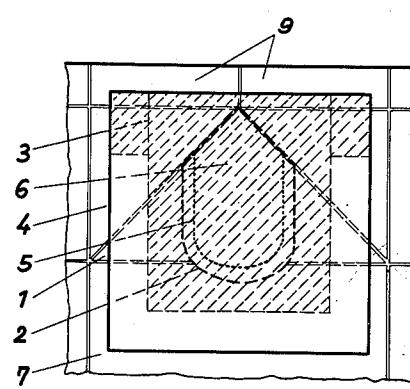
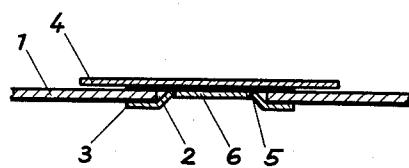


Fig. 3



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2 Sheets-Sheet 2

Fig. 4

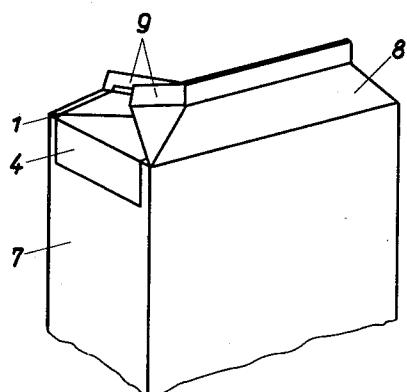


Fig. 5

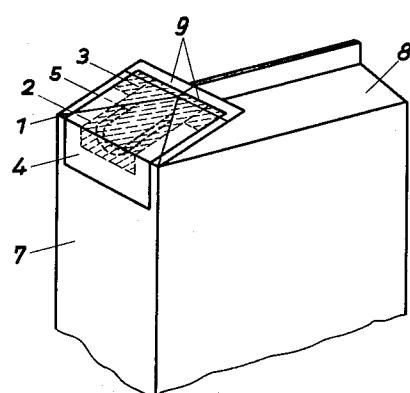


Fig. 6

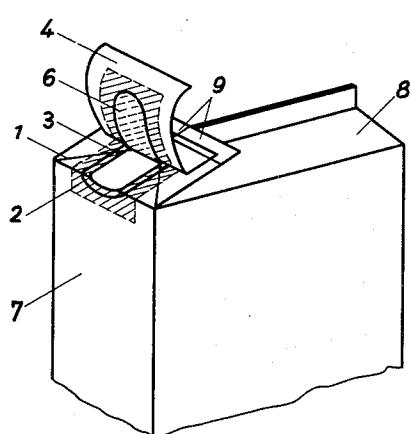
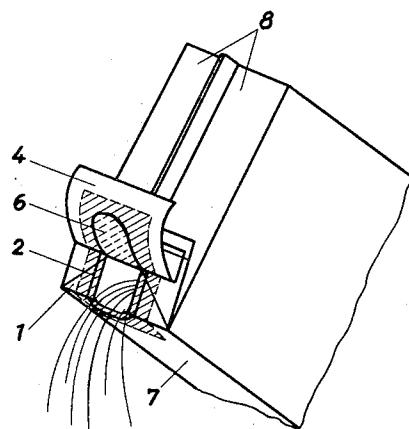


Fig. 7



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LIQUID-TIGHT CONTAINER OF PAPER, CARD-BOARD AND LIKE CARTON-FORMING MATERIALS

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6 Claims. (Cl. 229—7)

This invention relates to an improved liquid-tight container of paper, cardboard or the like carton-forming material and more particularly to a container of such type in which the tubular body portion is closed at at least one end thereof by means of a roof-shaped, bellows-fold closure which closure is provided with a pouring aperture.

In containers of the type above mentioned having upper and/or lower ~~Σ~~-shaped folding components which containers are primarily intended for receiving mass consumption products such as milk or the like. The arrangement and form of a pouring aperture (discharge outlet) is of great significance. Such pouring aperture of necessity must meet very high standards as regards simple, easy and trouble free operation when dispensing or removing the contents of the container. Furthermore, it is most desirable that when only a portion of the contents of the container have been dispensed or removed that the pouring aperture can be closed in such a fashion that dust, dirt or other foreign matter cannot enter the interior of the container. In addition to the foregoing, steps must be taken to avoid an unintentional or accidental opening of the pouring aperture. In view of the fact that a pouring aperture formed initially in the wall of the container by means of cutting, grooving, slitting or the like constitutes a weakening of the container wall, the danger of an unintentional opening and leakage effected by the liquid pressure of the contents or by outer mechanical influences caused during transportation or storage of the container is particularly great.

Liquid type containers of the general type under consideration are known in the art and in which containers the pouring aperture is located in one of the outer roof-shaped surfaces of the bellows-fold closure. The damage, hereinabove referred to, as regards the unintentional opening and leaking of the pouring aperture is present in this particular closure arrangement. Additionally, containers are known in which the pouring aperture is located in the upper zone of one of the side walls of the container. In addition to the fact that with such latter arrangement there exists not only the possibility of loss of contents through leakage, such containers result in a limitation of the amount of material which can be received by the container in view of the fact that the liquid level must lie below the area of the pouring aperture.

An object of the present invention is to provide a tubular container with a ~~Σ~~-shaped folding closure which eliminates the above and other objectionable characteristics existing in the art.

To accomplish the above and other advantageous objects, the present invention includes the concept of locating the pouring aperture in one of the roof-shaped, bellows-fold closure portions and close such aperture by means of a cover component or sheet which can be loosened or displaced outwardly from such closure portion and thereby exposing the pouring aperture. This particular arrangement possesses the material advantage that the pouring aperture which is sensitive to impact and pressure is located in a protected zone of the container and is covered by the overlapping parts of the roof-shaped, bellows-fold closure portion.

The pouring aperture provided in one of the roof-

2

shaped, bellows-fold closure portions extends partially into the adjoining wall portion of the container with the disposition being such that only the lower edge portion of the pouring aperture extends into the zone of such side wall while the main portion of such aperture is situated in the area of the roof-shaped, bellows-fold closure portion. The above mentioned feature is especially efficacious in that during pouring of the contents of the container a smooth stream of the liquid is provided which meets the prerequisite that at the initiation as well as at the termination of the pouring step the adjoining side wall of the container will not be wetted or dampened by leaking of the liquid.

The cover sheet or component serving to close the pouring aperture is so constructed and arranged as to extend or project beyond the lower bottom edge of the roof-shaped, bellows-fold closure portion and thus overlaps the juncture between such closure portion and the adjoining side wall of a container. Such a formation of the cover sheet or component possesses the advantage that such sheet can be easily and readily gripped by the fingers for opening the pouring aperture. Furthermore, the covering of the upper zone or area of the adjoining side wall assures that the rim portions of the aperture, which during the pouring step will have contact with the liquid contents, are protected against contamination. For the same reason, the width of the cover sheet or component is so dimensioned that the same extends substantially over the entire width of the roof-shaped, bellows-fold portion.

Yet a further advantageous characteristic of the invention is that the upper edge of the cover sheet or component is sealed over its entire surface with the roof-shaped, bellows-fold closure edge and the adjoining side edges of the cover sheet or component are readily detachably connected with such closure portion.

The foregoing method of attachment facilitates the gripping or grasping and loosening of the cover sheet or component for exposing the pouring aperture while the attachment of the upper edge of the cover sheet to the closure component over its entire width means that such area is sufficiently attached to the closure portion so that a complete detachment of the cover sheet or component from the closure portion is avoided or prevented.

To facilitate the opening of that part of the closure portion which is covered by the roof-shaped component and which contains the pouring aperture, the upper edges of the inner layers of the closure portion are connected together in a readily detachable fashion in the area of the roof-shaped, bellows-fold closure portion provided with such pouring aperture whereas the other edges of the closure portion are firmly secured together.

Further objects and advantages of the invention will become readily apparent from the following detailed description and annexed drawings and in which drawings:

FIGURE 1 is a view in perspective of a container construction in accordance with present invention with the container in the open position.

FIGURE 2 is a perspective view showing the filled and closed container.

FIGURE 3 is a cross-sectional view on an enlarged scale taken through the closure portion provided with the pouring aperture.

FIGURES 4-7 are views in perspective illustrating the container closure portion in various steps of the opening operation; and,

FIGURE 8 is a view on an enlarged scale of the closure portion provided with the pouring aperture.

In the manufacture or production of a liquid-tight, preferably prismatic container, one usually starts with an initially flat scored or cut piece covered on one or both sides with a synthetic material possessing not only im-

pregnating characteristics but also characteristics which become adhesive under the influence of pressure and heat. Such a piece after being provided with score lines for the subsequent formation of the roof-shaped, bellows-fold closure portion and with a prepared pouring aperture is shaped into an open ended tubular body by longitudinally seaming such piece such as shown in FIGURE 1. After forming the lower -shaped folding closure portion which is suitably flattened to provide a bottom which will permit the container to stand upright, the container is ready for the filling operation. After the liquid has been introduced into the container, the upper opened end of the container is in-folded in a fashion known in the art and to obtain a tight closure the same is sealed under the action of pressure and heat. FIGURE 2 shows the container thus filled and closed.

The present constructional example illustrated is directed to an essentially prismatic container of paper, cardboard or like carton-forming material which consists of a tubular body, the ends of which are provided with closures C. One of the closures C is a roof-shaped, bellows-fold closure. In the region of one of the inwardly folded gable portions 1 of such closure, a pouring aperture 2 is provided. After the pouring aperture 2 has been punched or otherwise formed in the portion 1 of the closure such aperture is adapted to be closed by a foil blank or component 3 which is pasted or otherwise sealed to the inside of the portion 1 as shown in FIGURE 3. Also, on the outside of the portion 1 a cover sheet 4 is pasted in such a fashion that the foil blank 3 and the cover sheet 4 are connected together adhesively in the zone of the pouring aperture 2. The foil blank 3 is provided with a cutting line 5 which bounds flap 6 of the aperture. The opening determined by the line 5 of the foil blank 3 is such as regards its dimensions and configuration that the opening is smaller than the pouring aperture 2 with the boundary lines of the aperture of the foil blank 3 and the boundary lines of the aperture 2 extending substantially equi-distant respecting each other.

As perhaps best shown in FIGURES 1 and 6, the dimensions and configuration of the pouring aperture 2 are so selected that the lower edge or perimetric portions thereof extends into side wall 7 of the container body which adjoins the closure C. Furthermore, the length of the cover sheet 4 which extends substantially across the entire width of the portion 1 of the closure C is so selected that the sheet extends over and beyond the lower boundary edge of the closure C and overlies the upper area of the side wall 7 of the container body.

It will further be noted in FIGURE 1 that the upper edge of the cover sheet 4 is sealed to the portion 1 over its entire surface whereas the lower edge and adjoining portions of the side edges of the sheet rest unattached to the portion 1 of the closure. To facilitate the initiation of the opening operation, that is to say, be able to raise without great resistance wall surfaces 8 of the closure C which surfaces cover protectively the portion 1, upper edges 9 of the inner layers of the closure are connected together in such a manner as to be easily detachable whereas the other edges of the closure are sealed together firmly.

The individual steps of the opening operation are illustrated in FIGURES 4 to 7 respectively. By reaching under the portions of the surfaces 8 of the closure which as above mentioned cover the portion 1 and consequently the pouring aperture 2, the upper edges 9 of the inner layers of the closure C can be easily separated in the

5 manner shown in FIGURE 4 since very little resistance must be overcome. These portions of the surfaces 8 are brought into the position shown in FIGURE 5 wherein the same form a common flat surface on which the cover sheet 4 also lies essentially flat. It is now possible to lift the cover sheet 4 by gripping its lower edge and the same can be detached from portion 1 of the closure sufficiently far to expose the full area of the pouring aperture 2. Upon dispensing a portion of the contents of the container, the pouring aperture 2 can again be closed by a reverse sequence of operation.

10 The invention is not to be confined to any strict conformity to the showing in the drawings but changes or modifications can be made therein, so long as such changes or modifications make no material departure from the spirit and scope of the annexed claims.

15 What is claimed is:

1. A liquid-tight container of paper, cardboard and like carton-forming material, comprising wall means defining a tubular body, a roof-shaped closure means including inwardly folded gable surfaces for at least one end of said wall means, one of said inwardly folded gable surfaces being provided with a pouring aperture therein, cover means secured to the outside of said inwardly folded gable surface for closing said aperture, said cover means including portions detachable outwardly from said inwardly folded gable surface for exposing said pouring aperture, said closure means including portions adapted to cover said aperture, and means detachably securing said portions together for protecting said aperture.

2. A liquid-tight container of paper, cardboard and like carton-forming material comprising wall means defining a tubular body, a roof-shaped, bellows-fold closure means for at least one end of said wall means, said bellows-fold of the closure means being provided with a pouring aperture therein with at least one edge of said aperture extending into the wall means adjoining the roof-shaped, bellows-fold closure means, and cover means secured to the outside of the bellows-fold for closing the pouring aperture, and said cover means including portions detachable outwardly from the bellows-fold and wall means adjoining the closure means for exposing the pouring aperture.

3. A liquid-tight container as claimed in claim 2 in which the main area of said pouring aperture is located in said bellows-fold of the closure means.

4. A liquid-tight container as claimed in claim 3 in which said cover means is of such dimensions as to provide a portion extending beyond the juncture between the wall means and said closure means.

5. A liquid-tight container as claimed in claim 4 in which said cover means includes a sheet having upper, lower and side edges, said sheet other than the lower edge and adjoining portions of the side edges being sealed to said bellows-fold of the closure means.

6. A leak proof container as claimed in claim 5 in which the upper edges of the inner surfaces of said closure means are detachably connected together while the other edges of said closure means are sealed together.

References Cited in the file of this patent

UNITED STATES PATENTS

2,870,935 Houghtelling ----- Jan. 27, 1959

FOREIGN PATENTS

393,199 Great Britain ----- June 7, 1933
1,054,008 Germany ----- Mar. 26, 1959