United States Patent

[11] 3,604,613

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[45] Patented **Sept. 14, 1971**

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[54] **SIDE-SEAM-SEALED CONTAINER**
4 Claims, 6 Drawing Figs.

[52] **U.S. Cl.** ..... **229/37 R,** 229/17 G, 229/3.1, 229/48 T
[51] **Int. Cl.** **B65d 5/40**
[50] **Field of Search** ..... 229/37, 3.1, 48, 17, 17 G, 37 R, 48 T

[56] **References Cited**

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Primary Examiner—Donald F. Norton
Attorney—Charles B. Smith

ABSTRACT: A container for packaging fluids is made from a scored folded blank of coated paperboard. The container is made resistant to leakage by preventing the uncoated edge of a side-sealing panel from taking up fluid. This edge is protected by skiving a strip adjacent to the edge of the sealing panel, scoring the center of the skived strip and folding it on the scoring so that the skived faces are in intimate contact with each other. The container is folded from the prepared blank and seam sealed.

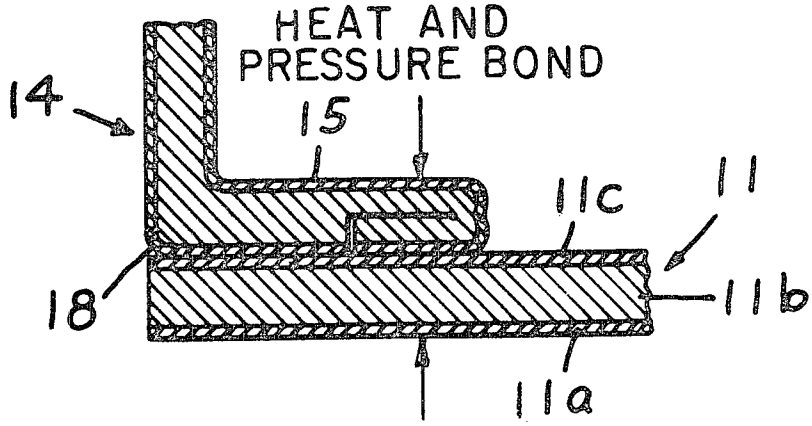


FIG.1.

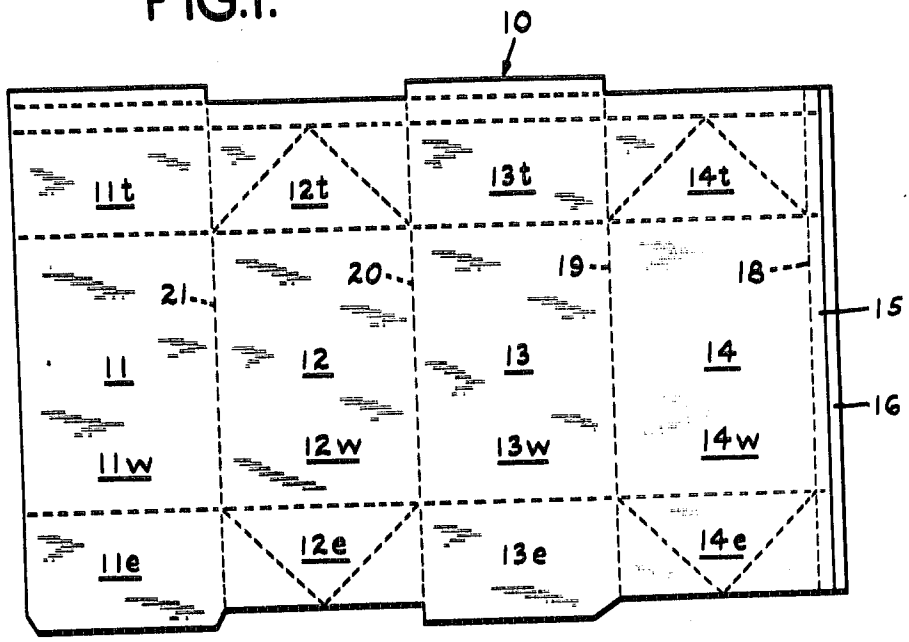


FIG.2.

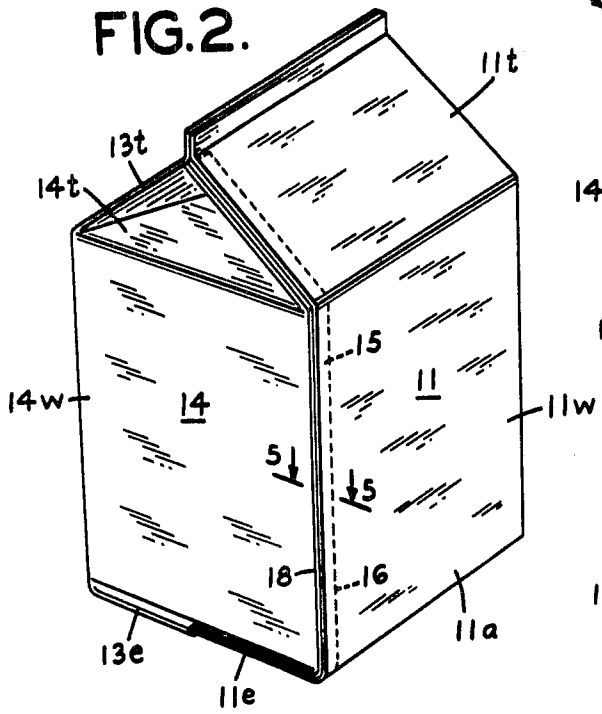


FIG.3.

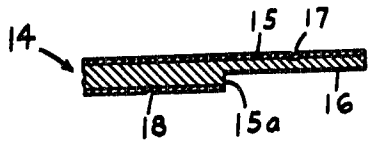


FIG.4.

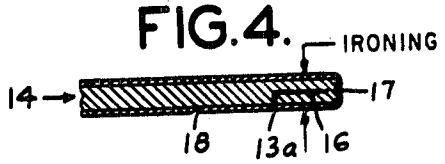


FIG.5.

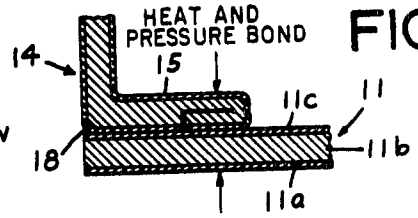
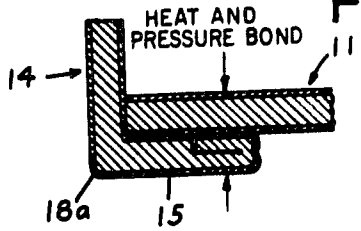


FIG.6.



SIDE-SEAM-SEALED CONTAINER

This is a division of application Ser. No. 628,709, filed Apr. 5, 1967, now U.S. Pat. No. 3,495,507.

BACKGROUND OF INVENTION

The packaging in paperboard containers of fluids such as soft drink syrups raises problems of leakage both into and out of the container. The containers are made of coated paperboard, scored and folded to the desired shape. The blanks for the containers are cut from the paperboard and thus have unsealed edges. If the "fifth" or sealing panel is on the inside, the contained fluid wicks into the raw edge weakening the container so that it may rupture under stress. If the sealing panel is on the outside, unwanted foreign material may leak into the container by wicking.

Efforts have been made in the past to inhibit and hopefully to stop this leakage with mixed results. The uncoated edges have been coated with sealing material. The coating on one face and the paperboard have been removed in a strip and the remaining coating folded over. The edge portions of the container material have been skived and folded together with intervening adhesive. Feather-edge or tapered skiving has also been used.

SUMMARY OF INVENTION

Containers of the kind contemplated are made for blanks of paperboard coated with a substantially impervious layer or film of a plastic material such as polyethylene or another plastic having suitable qualities. Many containers of this kind are of rectangular section, usually square. For making such a container the blank is scored to define four sidewall panels and a relatively narrow side-sealing panel sometimes called the "fifth" panel. The blank is further scored to divide each panel into top, body, and bottom or end sections.

In order to better solve the noted problems of making coated paperboard containers, it is proposed in accordance with this invention to prepare the container blank for assembly by skiving a strip on the sealing or fifth panel to a depth equal to half the thickness of the blank. A line is then scored down the middle of this strip on its unskived face dividing it into two parallel, half-width strips. The skived portion is then folded on the scored line so that the skived faces are in contact. Since the skived portion of the strip is half-thickness and the strip portions flanking the scored line are equal in width, the edge of the strip when folded fits tightly against the edge of the ledge formed by skiving and the folded portion is of the same thickness as the main stock. Because of the scoring and of the snug fit, no adhesive is needed in the fold. However, it is important that the fold line be ironed to reduce the springback tendency and thus keep the fold from unfolding through the heat activation period.

The side seam panel, which is bounded on its inner edge by a scored line between it and the adjacent body panel, is folded on this line to fit against a mating panel. The direction of the folding is such that the folded-over portion of the skived strip makes contact with the mating panel. Thus if the fifth panel is on the inside the folding is in one direction and if on the outside, in the other direction, and it is scored accordingly.

The sealing seam is wider than the folded-over skived strip by enough to obtain a bond beyond this strip. This part of the sealing seam may be as wide as or somewhat wider than the folded strip. The sealing may be accomplished by the application of heat and pressure to the mating portions of the folded blank. The top and bottom portions of the container are formed on their scored lines and suitably sealed.

BRIEF DESCRIPTION OF DRAWING

The features of this invention will be understood more fully and clearly from the ensuing description of illustrative embodiments thereof taken in connection with the appended drawings in which:

FIG. 1 shows a container blank on which the location of the scored lines and of the skived portion are indicated;

FIG. 2 is a perspective view of the erected container;

FIG. 3 is a section of the blank showing the location of skived and scored portions;

FIG. 4 is a section similar to FIG. 3 but with half of the skived portion folded unto the other half;

FIG. 5 is a section on line 5—5 of FIG. 2 showing a side seam assembled with the sealing or fifth panel inside the adjoining body panel; and

FIG. 6 is a section similar to that of FIG. 5 but with the sealing panel outside of the adjoining body panel.

DESCRIPTION OF ILLUSTRATIVE EMBODIMENTS

As seen in FIG. 1, the blank **10** comprises the four body panels **11**, **12**, **13** and **14**, and the side seam panel **15**. The panel **15** has a strip skived over a portion of its width as indicated by **16** as is more fully shown in FIG. 3. The sidewall portions of the blank are denoted as **11***w*, **12***w*, **13***w* and **14***w*. The portions of the top and bottom or end of the container are denoted as **11***t*, **12***t*, **13***t* and **14***t* and **11***e*, **12***e*, **13***e* and **14***e*, respectively. The location of some of the necessary scored lines is indicated by dotted lines **18**, **19**, **20** and **21**.

FIG. 2 shows the assembled container in perspective. The side-seam panel is on the inside and its edge is indicated by the dotted lines. The reference characters correspond to those of FIG. 1.

The sectional view of a portion of the container blank shown in FIG. 3 indicates where the side seam panel **15** has been reduced up to the shoulder **15***a* by skiving. The skiving removes material down to essentially half the thickness of the blank leaving a half-thickness portion **16**. A line **17** is scored down the middle of the skived strip on its coated side and parallel to the scored line **18** at the intersection of the panels **14** and **15**.

In the view of FIG. 4, the skived strip **16** is bent on the scored line **17** so that the skived faces are in contact. The edge of the strip **16** fits snugly against the shoulder **15***a* of the full thickness portion of the fifth panel **15**. Because of the scored line **17** and a good fit, no adhesive is required in this fold. However, the fold line **17** should be ironed, as by passing the blank between a pair of rollers after the fold has been made, as shown in FIG. 4, to reduce the tendency for the end of panel **16** to spring back. Such ironing keeps the fold from unfolding during the heat-activation period.

A corner joint between the side-sealing panel **15** and the sidewall panel **11** is shown in FIG. 5. The sidewall or body panel **14** is shown as bent on the scored line **18**. This represents a corner with the fifth panel **15** inside of the container.

In FIG. 5, the laminae of the coated paperboard are denoted. The plastic coatings **11***a* and **11***c* are on opposite faces of the paperboard **11***b*. This of course applies to the whole blank and not only to what is disclosed of panel **11**.

In FIG. 6, the fifth panel **15** is represented as outside of the first panel **11**. In order that this may be done a scored line **18***a* may be made on the side of the blank **10** opposite to the line **18** as it is shown in FIGS. 3 and 4.

The joint is bonded by the application of heat and pressure thereto by conventional means for sealing containers of this kind. It will be noted in the joints of both FIGS. 5 and 6 that the folded-over portion **16** of the panel **15** is between **15** and the panel **11** to which it is sealed. It will be further noted that the bonding includes a portion of the panel **15** that has not been skived and is therefore of the full thickness of the blank. In FIG. 6 the edge of the panel **11** butts tightly against the side of the panel **14**. Thus a strong leakproof joint is afforded.

The foregoing is a description of illustrative embodiments of the invention and is not intended as a limitation on what is claimed.

What is claimed is:

1. A fluid-packaging container which is resistant to penetration by the contained fluid and which protects the fluid from unwanted external substances, the container being constructed from a blank of foldable, plastic coated sheet material divided by scored lines into a plurality of contiguous sidewall panels and a side seam panel, each panel divided by other scored lines into top, body and bottom and having one surface of the side-seam panel bonded to the free margin of a sidewall panel,

the side seam panel having a full thickness strip extending from and integral with the edge of one of said sidewall panels and a skived edge strip extending from and integral with the edge of said full thickness strip, said skived edge strip being skived substantially uniformly from one surface to a thickness of substantially one-half the thickness of said plastic coated sheet material, said skived edge strip having a centrally located scored line and being folded about said scored line with the skived surfaces being in intimate contact with each other, the free edge of said skived edge strip abutting against the free edge of said full thickness strip,

the outer surface of the folded portion of the skived strip being part of the surface bonded to the adjacent sidewall,

and

top and bottom closure portions defined respectively by the top and the bottom sections of the panels.

2. A container as in claim 1 in which the plastic layers comprise a low-density polyethylene.

3. A container as in claim 1 in which there are four sidewall panels defining a container rectangular in section.

4. A blank for a container for packaging fluids which tend to penetrate the container or are contaminated by the ingress of foreign materials, which comprises a foldable sheet of paperboard having both faces coated with an essentially impervious plastic layer, the sheet being divided by scored lines into a plurality of sidewall panels and a side seam panel, the side seam panel including a skived strip adjacent to one edge and a scored folding line parallel to its edge in the center of the skived strip on its unskived face, the remaining thickness of said skived strip being uniformly substantially one-half the thickness of said sheet, the free edge of the unskived portion of said side seam panel forming a shoulder against which the free edge of said skived strip is adapted to abut when said skived strip is folded about said scored folding line with the skived surfaces in intimate contact with each other.

UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 3,604,613 Dated September 14, 1971

Inventor(s) Haas et al.

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Col. 1, line 29, "for" should be --from--.

Col. 3, line 7, after "bottom" insert --sections, which comprises a body portion defined by the side wall panels--.

Signed and sealed this 7th day of March 1972.

(SEAL)
Attest:

EDWARD M.FLETCHER,JR.
Attesting Officer

ROBERT GOTTSCHALK
Commissioner of Patents

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