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L. C. BROOKS
CONSUMER TYPE CONTAINER
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2,450,110

Fig. 1.

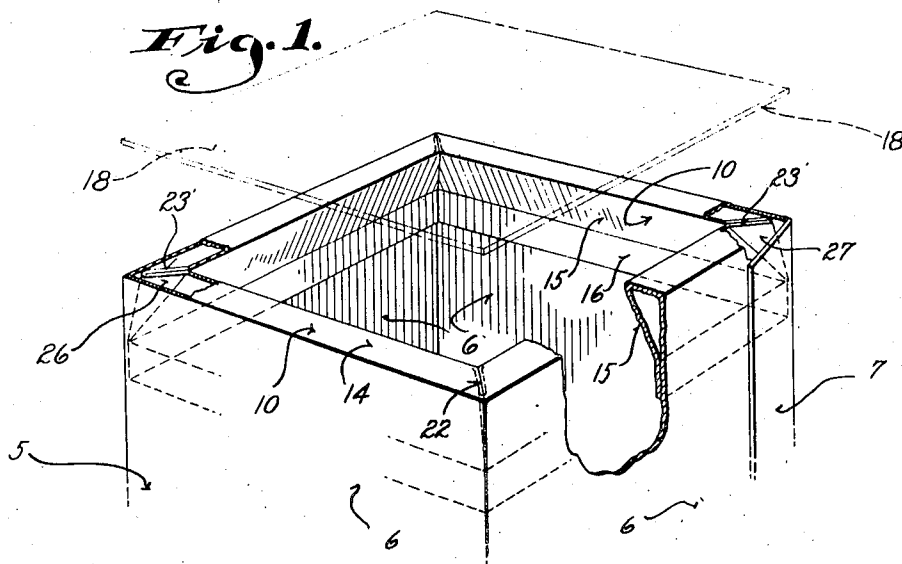


Fig. 2.

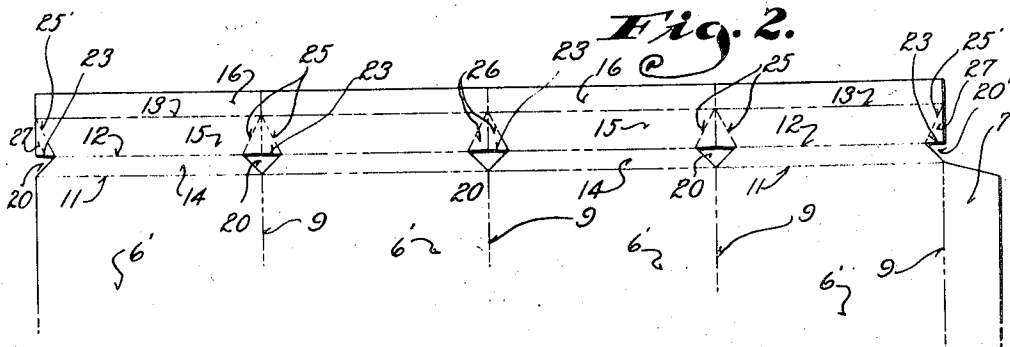
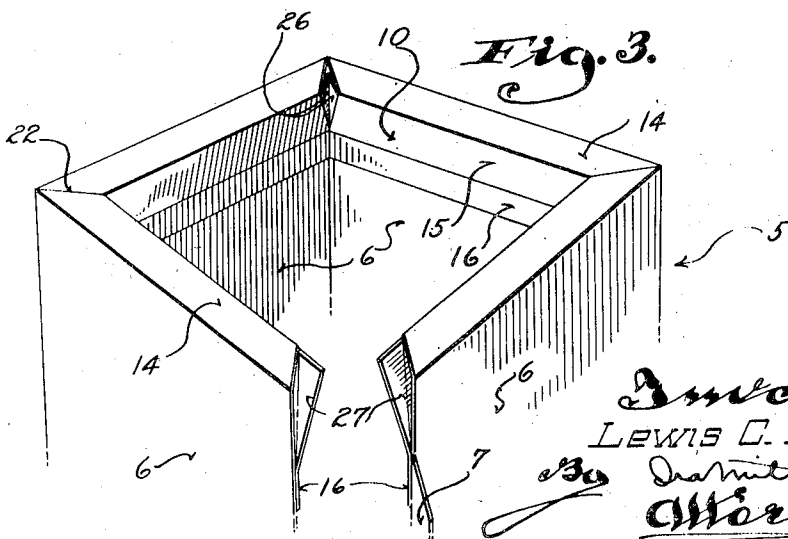


Fig. 3.



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UNITED STATES PATENT OFFICE

2,450,110

CONSUMER TYPE CONTAINER

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Application October 2, 1947, Serial No. 777,404

3 Claims. (Cl. 229—37)

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This invention relates to consumer type containers like those of Patent No. 2,398,404, issued to Lewis C. Brooks, April 16, 1946, and more particularly like those of the co-pending application of Lewis C. Brooks, Serial No. 741,904, filed April 16, 1947.

As in the aforesaid patent and co-pending application the containers herein concerned are made of flexible sheet material such as fiber or paper board, and comprise a tubular body having relatively flat sides and angular corners characterized by the provision of a hollow reinforcing and closure supporting rim at one or both ends of the body.

The hollow rim on the end (or ends) of the body is made by scoring an end portion of the blank from which the body is formed transversely to the scores defining the body side walls from each other to produce three articulated strips which may be bent inwardly over one side of the blank in a manner such that the innermost strip provides a ledge flush with the end of the body and perpendicular to the side walls, the intermediate strip connecting with the overhanging edge of the ledge extending diagonally down from the ledge to the side wall forming panels of the blank and providing a strut for the ledge, and the outermost strip being flatwise adhered to the side wall forming panels to anchor the strut in place.

With the strips secured in position on the blank in the manner described, the blank may be folded along the scores which define the side wall panels from one another to produce a tubular body, it being understood that a suitable glue flap on one of the end panels of the blank is adhered onto the side edge of the panel at the opposite end of the blank to secure the panels in their body forming condition.

Bending of the blank to produce the tubular body is commonly referred to as the "forming up" operation and requires that certain of the strips forming the rim be notched to facilitate bending of the rim at the corners of the body.

It was previously the practice to notch or cut out portions of the ledge and strut forming strips as indicated in the aforementioned patent of the applicant to enable such bending of the rim, but whenever portions of the strut-forming strip were cut away for this purpose it was frequently possible for liquids packaged in the container to seep into the interior of the hollow rim at the corners of the body to become trapped inside the rim.

The seepage of liquids into the interior of the hollow rim is obviously objectionable, and it is

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the main purpose of the present invention to overcome this objection.

Accordingly, this invention has as its object the provision of a consumer type container of the character described wherein means is provided on the rim itself for closing the rim at the corners of the container to preclude the seepage of liquids into the interior of the rim.

In a more specific sense, this invention has as its object the provision of a consumer type container with a hollow rim at one end thereof and wherein pleats fashioned from a portion of the rim exposed to the interior of the container are employed to effect closure of the rim at the corners of the container.

With the above and other objects in view, which will appear as the description proceeds, this invention resides in the novel construction, combination and arrangement of parts substantially as hereinafter described and more particularly defined by the appended claims, it being understood that such changes in the precise embodiment of the hereindisclosed invention may be made as come within the scope of the claims.

The accompanying drawing illustrates one complete example of the physical embodiment of the invention constructed according to the best mode so far devised for the practical application of the principles thereof, and in which:

Figure 1 is a perspective view of the upper portion of a consumer type container embodying the principles of this invention and having portions broken away to show details of construction;

Figure 2 is a plan view of a portion of the blank from which the container of Figure 1 is made; and

Figure 3 is a fragmentary perspective view of the upper portion of the body of the container illustrating the condition of the same during the final stages of the "forming up" process.

Referring now more particularly to the accompanying drawing the numeral 5 generally indicates the body of the container of this invention, only a portion of the upper end of which has been shown, it being understood that both ends of the body may be of the same construction. The body is shown comprised of four side walls connected together by a glue flap 7 to produce a body of substantially square prismatic tubular shape.

While the container has been shown provided with four side walls, it will be apparent that the invention is applicable to containers having three sides or more than four sides.

The body is made from a one-piece blank of

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flexible sheet material such as paper or fiber board or even flexible sheet metal, and the upper edge portion of the blank from which the body is made is shown in Figure 2, it being understood that the lower edge portion of the blank may be in all respects identical. As shown in Figure 2, the blank is provided with equispaced vertical score lines 9 to define the side wall forming panels 6' of the blank from one another, the glue flap 7 on one of the end panels of the blank being hinged thereto by one of the vertical score lines.

The body is provided with a hollow reinforcing and closure supporting rim 10 at its upper open end and this rim is formed by portions of the body side walls bent back upon themselves and secured to the inner wall of the body in a manner described at length in the aforesaid patent of the applicant and his co-pending application, Serial No. 741,904. It is sufficient here to note that the upper end of the blank from which the body is made has three spaced scores 11, 12, and 13, extending transversely thereacross perpendicular to the scores 9 which define the side wall panels of the blank from one another. The scores 11, 12, and 13 define three articulated strips 14, 15 and 16 which when bent inwardly as shown provide a hollow rim extending completely around the upper end of the body and overhanging the inner surfaces of the body walls.

The inner strip 14 of the blank defined by the scores 11 and 12 provides a flat ledge folded in flush with the end of the body and perpendicular to the body side walls; the strip 15 of the blank defined by the scores 12 and 13 extends diagonally downwardly from the inner overhanging edge of the ledge toward the inner surfaces of the body side walls; and the outer strip 16 comprising the extreme marginal edge of the extension outwardly of the score 13 comprises an anchor strip which lies flatwise against and is adhered to the inner surfaces of the body side walls a distance inwardly of the ledge 14.

Thus it will be seen that the rim 10 is substantially of hollow triangular cross section as indicated in Figure 1 and that the ledge 14 of the rim which is reinforced by the diagonal strip 15 provides a rigid flat supporting surface upon which a flat end closure such as indicated at 18 may be adhered to close the end of the body.

In the "forming up" of the container body, it is customary to bend the rim forming strips and adhere the outermost anchor strip 16 onto the side walls of the blank prior to rolling up the blank on the scores 9 to produce a tubular body. Because of this fact the innermost strip 14 of the blank is provided with substantially triangular cutouts 20 and notches 20' at the ends of the strip which enable the rim to be bent around the corners of the body and which cutouts separate the ledge forming strip into cooperating ledge sections, one for each side wall of the container. The sides of these triangular cutouts produce bevelled ends on the cooperating ledge sections to produce a mitered joint 22 between their adjacent ends at all the corners of the body.

One side 23 of the cutouts and the notches lies substantially directly on the score line 12 at the intersection thereof with the vertical scores 9, and the area of the intermediate strut-forming strip 15 on either side of the score 9 is provided with pleat forming scores 25 which lead from the opposite ends of the side 23 of the cutouts in converging relationship with the scores 25 terminating at the point of intersection between the vertical scores 9 and the outermost score 13. The

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scores 25, together with the portions of the vertical scores 9 between them, define pleat sections 26 hinged together along the scores 9.

Scores 25' similar to the scores 25 at the intermediate portions of the blank, are provided at the ends of the strut-forming strip 15 and extend diagonally between the inner corners of the notches 20' at the score line 12 out to the ends of the outermost score line 13.

In forming up the body of the container the bending of the rim leaves the area of the intermediate strut-forming strip 15 bounded by the scores 25 and the edges 23 of the triangular cutouts as excess material which is folded or pleated flatwise together as indicated best in Figure 3 and tucked into the corners of the body inside the hollow rim 10. The pleated portions at all except the glue flap corner of the body are integral with the anchor strip and leave the same unbroken and imperforate along the four sides of the body and around all but the glue flap corner.

At the fourth corner of the container, which comprises the glue flap corner, the scores 25' in conjunction with the notches 20' produce substantially free triangular flaps 27 which may be bent inwardly of the hollow rim and engaged flatwise together in a manner similar to the folding together of the pleats 26.

The sides 23 of the triangular cutouts, as stated, lie substantially directly on the score 12 and separate the pleat sections 26 and the flaps 27 from the ledge forming strip 14, and in addition define the top edges 23' of the pleats and the flaps. As will be noted in Figure 1, the top edges 23' of the pleats and flaps lie in the plane of the underside of the ledge 14 and engage the same so as to effect closing of the hollow rim at all of the corners of the body. In some instances, however, this condition can be obtained only by forming the sides 23 of the cutouts by a pair of straight cuts having their junction on the vertical scores 9 and on the intermediate strip 15 a slight distance outwardly of the score 12, with the cuts diverging at a wide angle and terminating on the score 12 as shown in Figure 2.

The attachment of the closure 18 onto the flat ledge 14 thus effectively seals the end of the body against leakage of liquid materials in the container past the closure seal while seepage of the liquids into the interior of the hollow rim at the corners of the body is effectively prevented by the inwardly folded pleats 26 and the flaps 27.

For packaging liquids such as milk it is customary to employ cut and scored blanks which have been precoated on all surfaces thereof with paraffin or the like which enables sealing of all the joining parts by the application of heat and pressure thereto. Hence the application of heat and pressure onto the cover 18 to press the same onto the ledge activates the adhesive coating on the ledge and the cover and to some extent the coating on the pleats and flaps, to securely close the rim and to tightly seal the end of the container.

From the foregoing description taken in connection with the accompanying drawing, it will be readily apparent to those skilled in the art that this invention provides an effective manner of sealing the hollow rims at the ends of containers so equipped to preclude seepage of liquids into the interiors of such rims.

I claim:

1. In a container of the type having connected

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side walls defining a tubular body with angular corners, a hollow rim at one end of the body formed by connected strips constituting part of the body walls, one of said strips producing inwardly projecting relatively flat ledges on at least two adjacent side walls flush with said end of the body to support an end closure flatwise thereon, said strip having a substantially triangular cutout producing a mitered joint between the adjacent ends of the ledges at the corner defined by said two adjacent side walls and facilitating bending of the rim in the forming up of the tubular body, another of said strips producing a strut-like element connecting diagonally between the overhanging edges of the ledges and the inner surfaces of said two adjacent side walls, said strut-like element extending without break along said side walls and around the corner defined thereby; and a pleat on said strut-like element adjacent to said corner and separated from the adjacent ends of the ledges by said cutout, said pleat being folded flatwise on itself to project into said corner substantially perpendicular to the ledges with the edge portions of the pleat defined by one side of the cutout lying in the plane of the underside of the ledges and abutting the same to close the rim at said corner of the body.

2. In a container having an upright substantially flat-sided body made by folding a single blank of flexible sheet material on appropriate score lines: a hollow end closure supporting rim extending entirely around one end of the body and projecting in from the sides thereof, said rim comprising three articulated strips integral with the side walls of the body and defined therefrom by score lines extending across the entire blank from which the body is formed transversely to the score lines defining the side walls from each other, the outermost of said strips on the rim being adhered flatwise onto the inner surfaces of the side walls a distance inwardly of said end of the body, the innermost of the strips being bent inwardly over said end of the body to provide a relatively flat ledge on the ends of the side walls substantially perpendicular thereto and flush with said end of the body, said innermost strip having substantially triangular cutouts ad-

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5 adjacent to the body corners separating the strip into ledge sections, one for each side wall of the body, said cutouts facilitating folding of the rim around the corners of the body and producing mitered joints between the adjacent ends of the ledge sections at the corners of the body, and the intermediate one of said strips being unbroken for its entire length and connecting diagonally between the outermost of the strips and the overhanging edges of the ledge sections to reinforce the same; and upright pleat-like portions on said diagonal intermediate strip, separated from the ledge by the cutouts therein, and folded flatwise together to project inwardly into the hollow rim at the corners of the body, the edges of the pleat-like portions defined by one side of said cutouts engaging the undersides of the ledge sections so that said pleat-like portions close the rim at the interior of the body.

20 3. In a consumer type container of the character described: a body formed from a single blank of flexible sheet material and having upright relatively flat side walls and angular corners; a hollow rim at one end of the body formed from part of the side wall panels of the blank 25 from which the body is made and including an inwardly directed relatively flat ledge on each of the body walls flush with said end of the body, the ends of the ledges being beveled so as to abut one another at the corners of the body with a mitered joint, and said rim including a strut-like element connecting diagonally between the overhanging edges of all of the ledges and the inner surfaces of their body walls, said strut-like element extending without break around all but one 35 of the corners of the body; pleats on the strut-like element folded together and tucked into all but said one corner of the body and engaging the undersides of the ledges to close the hollow rim at said designated corners; and flaps on said strut-like element folded into the remaining corner of the body beneath the ledges and engaging the undersides of said ledges and each other to 40 close the hollow rim at said remaining corner of the body.

LEWIS C. BROOKS.

No references cited.