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C. L. MARSHALL

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PAPER CONTAINER

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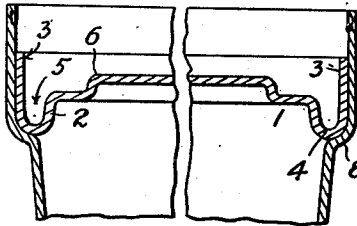


Fig. 1.

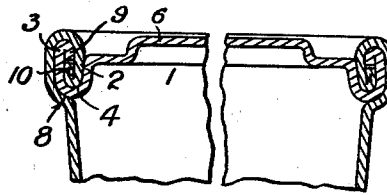


Fig. 2.

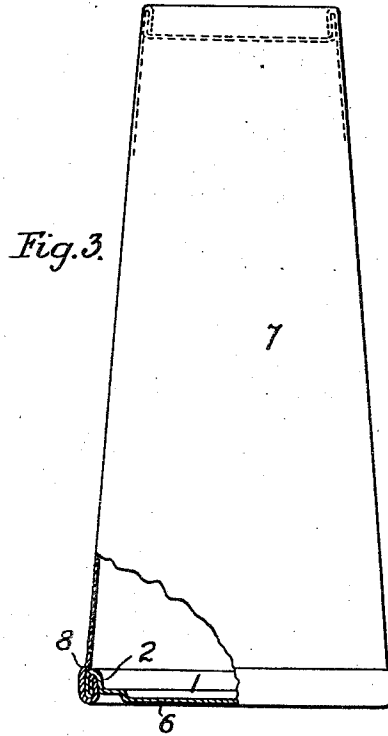


Fig. 3.

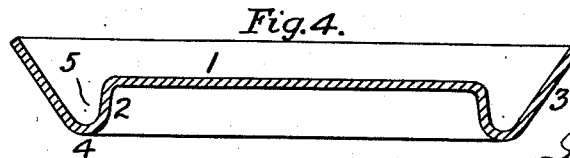


Fig. 4.

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PAPER CONTAINER

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1 Claim. (Cl. 229-5.6)

This invention relates to paper containers such as are used for milk, cream, orange juice, and the like, and has for its object to provide a closure which will remain tight under all circumstances, so that when secured in the container in the manner hereinafter described it can for example be used for the larger end of conical containers which, already supplied with an end closure at the smaller end, are filled and then have the improved closure applied to the larger end, and are subsequently to be stored and delivered with the smaller end uppermost.

Although hereinafter described particularly for use in connection with these conical containers, it must be understood that the invention is not limited thereto, as the improved closure can be equally well applied in the manner described to cylindrical paper containers.

The invention is illustrated in the accompanying drawing, in which Fig. 1 shows the improved closure in position in a conical container before being finally secured therein; Fig. 2 shows such closure secured in position; Fig. 3 a complete container after it has been filled and the closure has been secured, and the container reversed to stand on its larger end; and Fig. 4 shows a slightly modified form of closure which can be employed in some cases. In this drawing the thickness of the material has been exaggerated to render the arrangement clear.

Referring to Fig. 1 it will be seen that the closure 1 consists of a disc the outer edge of which is, in the position shown in Fig. 1, turned first downwardly at 2 and then upwardly to form a flange as at 3, the downward and upward bends 2 and 3 being connected by a curved part 4 and being spaced apart to leave a groove 5 as shown. It is preferred to also raise the central portion 6 of the closure, as shown in Figs. 1, 2, and 3, for the purpose hereinafter described, but in some cases this may not be necessary and the closure is then formed as shown in Fig. 4.

In applying the improved closure to a container 7 such as that shown in Fig. 3, same is inserted therein until the curved part 4 at the bottom of the groove comes into contact with a shoulder 8 formed on the inner surface of the container, and a simple form of crimping tool is employed which as it is advanced first turns inwardly and downwardly the upper edge of the side wall of the container projecting above the upper edge of the flange 3 of the closure. The continued movement of the crimping tool turns over the upper edge of flange 3, as at 9 in Fig. 2, and at same time forces the upper edge of the side

wall of the container down into the groove 5 of the closure, and as the crimping movement progresses such upper edge of the side wall will make contact with the curve 4 at the bottom of groove 5, which will turn it back on itself and direct it upwardly towards the turned-over edge of flange 3 of the closure, as is clearly shown at 10 in Fig. 2.

It will be seen that the groove 5 of the improved closure has the effect of guiding the material during the crimping operation to form a perfect joint by rolling such material on itself, which has not hitherto been possible without the employment of complicated mechanical means. When such means were employed it was necessary to withdraw same on the completion of the operation, and this withdrawal has always tended to weaken the finished article. The crimping tool necessary for use with the improved closure is of very simple form, taking little power to operate, and on its withdrawal has no weakening effect on the finished closure.

A further effect of the groove 5 in the closure 1 is that it prevents the side wall of the container 7 and the inturned edge of flange 3 of the closure from opening out again should these parts be subjected to the action of excessive moisture. The result of the absorption of moisture is rather to tighten the closure, the rolled parts of the latter and of the container tending to swell and so to hold the parts more securely together, maintaining a perfect joint.

In applying the present invention in connection with conical containers such as that shown in Fig. 3, it is generally accepted that for convenience in transport and storage same should be made with closures of any suitable form already fitted into their smaller ends, and subsequently filled at the larger end with the liquid or other contents for which they are intended, and to which larger end a closure such as that described is then applied.

For subsequent transport and delivery it is often desirable that such containers should be stood on their larger ends, and it is with the object of taking part of the weight of the contents that the central portion 6 of the closure is raised as shown in Figs. 1, 2 and 3. In the latter figure the container is shown as standing on its larger end, supported mainly by its inturned edge, but that the raised central portion 6 is at substantially the same level, so that part of the weight will be borne thereby, especially when the contents consist of buttermilk or the like which have a tendency to create a pressure inside the container.

In cases where central support for the weight of the contents may not be thought to be necessary the closure may be made as shown in Fig. 4, without the raised central portion 6.

5 As shown in Fig. 1 the flange 3 of the closure is compressed by having been forced into the container, but in practice such flange will be partially opened out or inclined outwardly as shown in Fig. 4, the resilience of such flange due to the presence of the groove 5 enabling it to be
10 inserted into the container without buckling. This formation of the closure with groove 5 and outwardly inclined flange 3 is of material advantage, as a number of the closures can be
15 stacked together to occupy comparatively little space, much less than in the case of the flanged closures without groove 5 hitherto used. Further the formation permits of stacking a number of the closures in a magazine for automatic
20 feeding to a filling and closing machine, without a tendency to cause the opening out of the flange.

In applying the improved closures to containers already having closures at their other ends and
25 filled with the liquid or other contents for which they are intended, it will of course be necessary to first submit the improved closures to treatment with wax or other like agent, but in some cases, as for instance in making cylindrical con-
30 tainers, a closure of the type described can be inserted and crimped in to form the bottom of the

container, and the thus completed container subsequently treated with the wax or other agent, making a very secure joint. After such a container has been filled a waxed closure similar to that described can be inserted at the other end. 5

What I claim and desire to secure by patent is:—

A paper container, comprising a tubular body portion provided at one end with a short cylindrical enlargement forming a concave shoulder 10 on the inner face of said body portion, and a closure disc provided with a U-shaped portion forming a groove in the periphery of said disc, the outer wall of said U-shaped disc portion engaging said concave shoulder and the inner face 15 of said cylindrical enlargement, the extreme outer margin of said cylindrical enlargement being folded inwardly upon itself and being bent inwardly and downwardly over the upwardly extending outer wall of said U-shaped portion of
20 said closure disc to be positioned with its folded margin in the peripheral groove thereof, the marginal portion of the outer wall of said U-shaped disc portion being folded inwardly upon itself and being positioned to face the folded margin of said 25 cylindrical enlargement in said groove, the folded margins of the U-shaped disc portion and cylindrical enlargement being arranged substantially in alignment with the wall of said tubular body portion. 30

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