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B. H. LOCKE

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FOLDING LIQUID CONTAINERS

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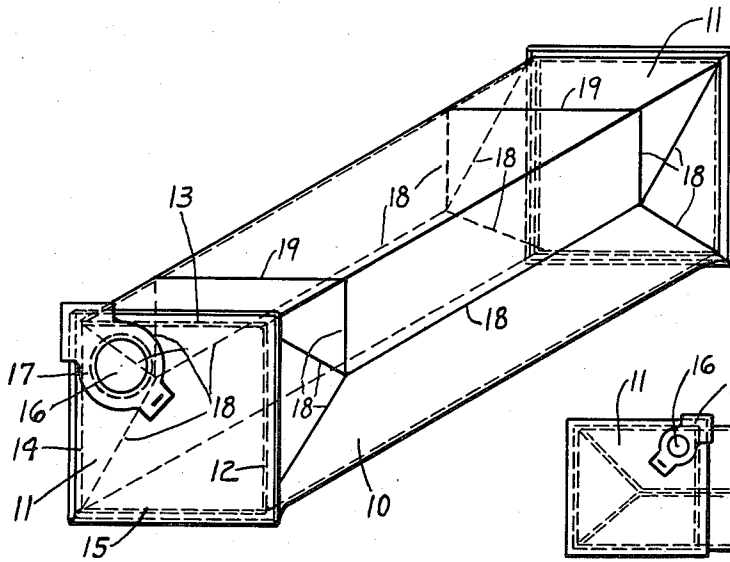


Fig. 1.

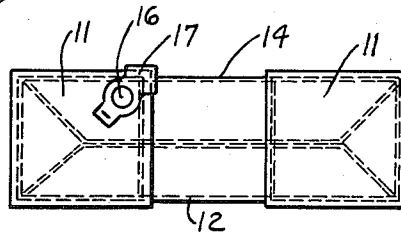


Fig. 3.

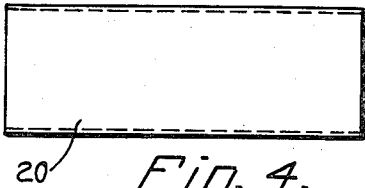


Fig. 4.

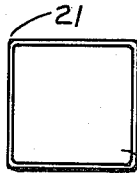


Fig. 5.

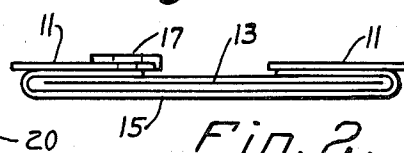


Fig. 2.

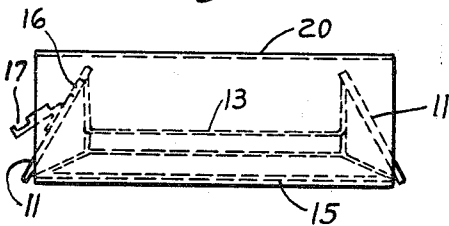


Fig. 7.

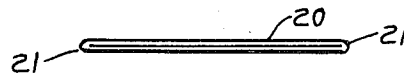


Fig. 6.

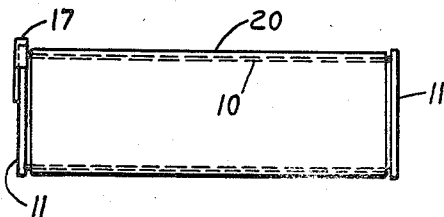


Fig. 8.

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FOLDING LIQUID CONTAINERS

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2 Claims. (Cl. 229—23)

This invention relates to improvements in folding containers for use in vending liquids of the form that is manufactured liquid tight and then folded to a flattened condition for handling and then unfolded and filled for vending with no further sealing being required.

The object of the invention is to provide a container that is constructed liquid tight by the manufacturer and then folded to reduce its size to facilitate handling; storing; transporting and rehandling thereof and then can be easily and quickly unfolded to its original form and filled and then covered without further sealing requirement during or after the filling operation.

A further object is to provide a tight construction with the sides thereof folded inwardly so that when the container is returned to its original form and filled the normal outward pressure of the liquid within will act to urge and retain the sides outward to their normal position and thus afford a neat and substantial structure.

A further object and an improvement in the construction set forth in my application filed February 21, 1957, Serial No. 641,733, now abandoned, is to provide an outer reinforcing band or sleeve that can be easily applied around the sides of the container as the container is unfolded to its normal form to receive liquid. The sleeve is such as to be folded flat for handling; shipping and storing and can readily be opened and applied by the liquid vender. The purpose of the sleeve is to reinforce the sides of the container and thereby permit the sides to be constructed of relative thin material to render them susceptible of neat and easy folding. Also, the sleeve can bear the label of the container's contents while the container itself can be plain. This permits the manufacture of plain containers for all products which affords a more universal manufacturing schedule for the containers.

A further object is to construct the container and the manner in which it is folded in combination with the shape of the reinforcing sleeve to permit the sleeve to be positioned on the container and to become tightly secured thereon as the container becomes completely unfolded and also to retain the container unfolded in its utilizable form. This eliminates the necessity of adhesives or any other means to attach the sleeve to the container.

In the accompanying drawing:

Figure 1 is an isometric outline drawing of the normal container showing its general shape and the scoring thereof for folding.

Figure 2 is a side elevation of the container to a smaller scale and when completely folded.

Figure 3 is a plan view of that shown in Figure 2.

Figure 4 is a side view of the reinforcing outer sleeve in its open form.

Figure 5 is an end view of the same.

Figure 6 is an end view of the sleeve when it is flattened for handling.

Figure 7 is a side view of the container in its nearly

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unfolded form with the reinforcing sleeve in position to become attached thereto as the container becomes finally completely unfolded.

Figure 8 is a side view of the container when completely unfolded and the reinforcing sleeve secured thereon.

My improved liquid container comprises a square or rectangular shaped box-like structure 10 generally constructed of a paper board that has been scored to facilitate the folding thereof and coated with a film of wax, or the like, and then formed and sealed liquid tight. In the construction shown, the ends 11 of the container are flanged to extend slightly outside of the sides 12, 13, 14 and 15 as shown although the flanging of the ends is not absolutely necessary. The normal requirement is that the outside edges of the ends of the container be at least flush with the outside surface of the sides of the container.

The container has an aperture 16 in one of the ends 11 thereof to permit the filling and dispensing of liquid and a removable cover 17, of suitable construction, is fitted tightly into the aperture 16 to retain the liquid as required. Obviously the aperture could be positioned in a side of the container without departing from the invention if desired in which case an aperture through the reinforcing sleeve to be described hereinafter would have to be provided.

The ends of the container are generally substantially rigid in construction while the sides are constructed relatively thin and flexible to be susceptible of easy folding. The sides 12 and 14 are scored as shown by lines 18 and the side 13 as shown by lines 19 to facilitate the folding of the container. Inasmuch as the sides are relatively thin and scored to facilitate folding, they are relatively weak in structure. To compensate for this structural weakness, a sleeve 20 to fit tightly around the sides of the container is provided and is applied as the container is unfolded for use.

The sleeve 20, as shown in Figure 5, is of a rectangular cross-section and is similar to the cross-section of the container. The cross-section of the interior of the sleeve is generally slightly less than the exterior cross-section of the container so that it will be tightly retained on the container without the use of adhesive or other attachment requirement when in position on the container. Also, the sleeve being tight on the container will render maximum reinforcement thereto. The sleeve 20 being creased at the corners 21 thereof can be collapsed as shown in Fig. 6 to facilitate handling; storing and the shipping thereof.

After being scored the container board is generally coated with a type of wax, or the like, that is non-solvent in the liquid for which the container is to be used for reason to render the container resistant to the said liquid. The container is then formed and finally sealed liquid tight before being folded.

The container is folded by the opposing sides 12 and 14 being pressed inwardly toward each other and the upper side 13 being pressed downward toward the lower side 15 simultaneously therewith. After the upper side 13 has been completely flattened down onto the lower side 15, the ends 11 are swung down flat onto the side 13, as shown in Figure 2, thereby forming a flat condensed package.

It will be noted that the bottom side 15 and the ends 11 remain flat in their original form without folds. To facilitate the folding and unfolding of the container it is generally preheated to render the wax coating pliable. Also, the cover is removed to permit air within the container to exhaust when the container is folded and to admit air when it is unfolded.

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When the container is being prepared for use by the liquid vender, it is partially unfolded as shown in Figure 7 by the ends thereof being pulled upward or by a relatively light blast of air being ejected into the aperture 16. Then the sleeve 20 is placed in position over the container as shown in said figure which is easily accomplished due to the container being in a partially folded form and the sleeve being flexible enough to pass by the flanged portion at the end of the container. A relative strong blast of air can then be injected into the aperture 16 which will cause the container to unfold to its normal form and the ends 11 are forced outside of the sleeve, as shown in Figure 8.

As stated above, the sleeve 20 is a tight fit on the unfolded container and thus is held tight in place thereon and reinforces the foldable sides of the container. The flange portion of the ends further insures that the sleeve will remain intact although it is not essential that the ends be flanged because the sleeve is such as to become tightened on the container upon the final unfolding thereof for reason that the rigid flat ends of the container are larger in cross-section than the inside cross-section of the sleeve and thus are required to be forcibly swung upwardly and through the ends of the sleeve, respectively, as indicated in Figure 7, whereat they are retained, as shown in Figure 8, due to said relative sizes of the parts. Furthermore, the pressure of the liquid within the container serves to urge and retain the inwardly foldable walls outwardly against the sleeve.

Obviously, the container in its folded form requires only a fraction of the space for storing and shipping that it would require in its open unfolded form. Therefore, the folded container affords compactness which is the main object of this invention. Furthermore, the container is susceptible of easy folding and unfolding and then can be filled and put into service without any additional requirement of sealing which is another objective of the invention.

I do not wish to be confined to the exact details set forth as the same are susceptible of modification with-

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out departing from the spirit or scope of the invention. I claim:

1. A rectangular-shaped, liquid-tight container constructed of fibre material and comprising two members one within the other, the inner member comprising a rectangular-shaped liquid-tight structure having substantially rigid ends and foldable sides disposed to afford tilting of the ends relatively thereto to permit assembling and disassembling of the members, a dispensing aperture in one of said ends and a liquid-tight cover for the same, the outer member comprising a rectangular-shaped open end sleeve substantially covering the sides of the inner member, the lateral periphery of the inside of the outer member being less than the lateral outside periphery of the ends and the lateral outside periphery of the sides of the inner member thereby defining an area less than the area defined by the said ends and sides, the ends of the inner member extending outside of the ends of the outer member, respectively, and being retained thereat because of the relative difference in the projected area at the ends of the members.

2. A rectangular-shaped container as described in claim 1, with at least the inside surface of the inner member being coated with material impervious to the liquid to be contained therein.

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