

Dec. 16, 1947.

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2,432,968

MULTIWALL CONTAINER

Filed March 14, 1944

3 Sheets-Sheet 1

Fig. 1.

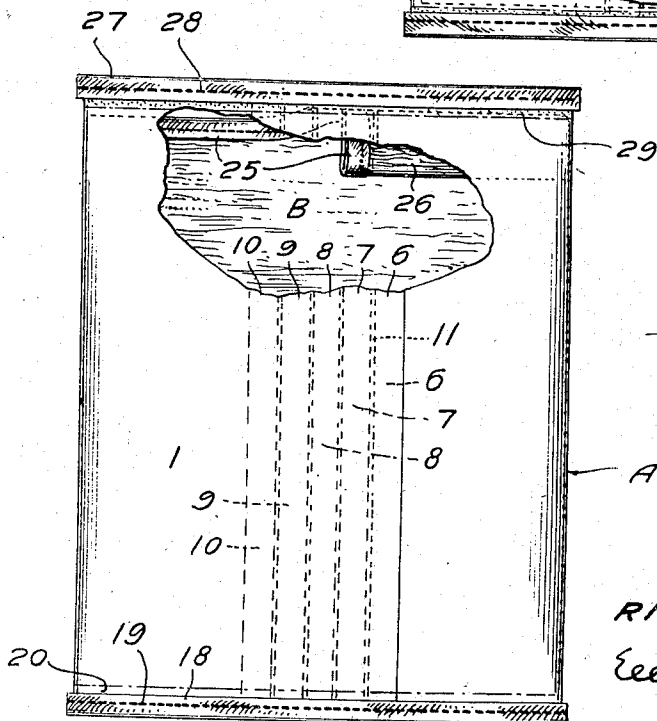
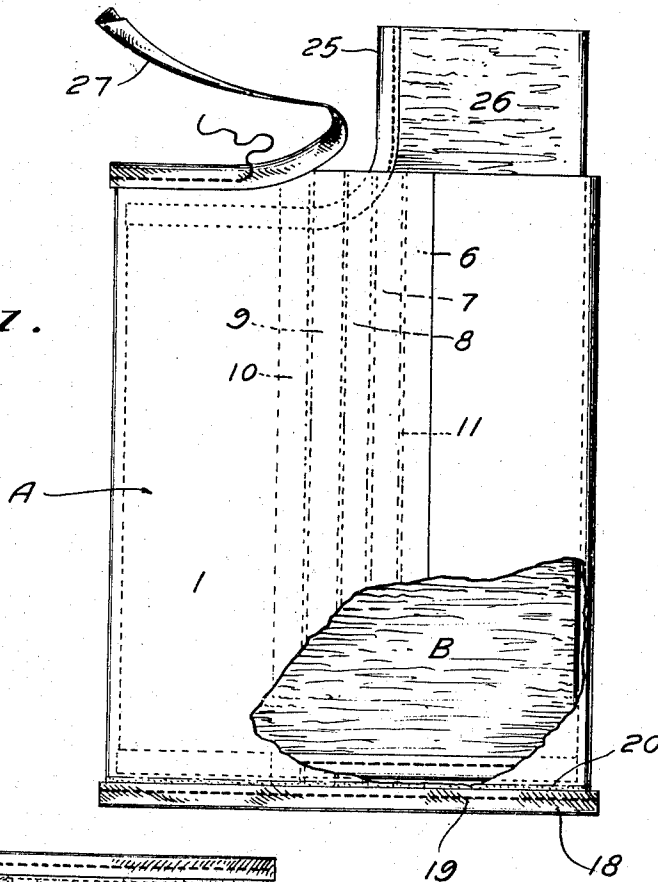


Fig. 2.

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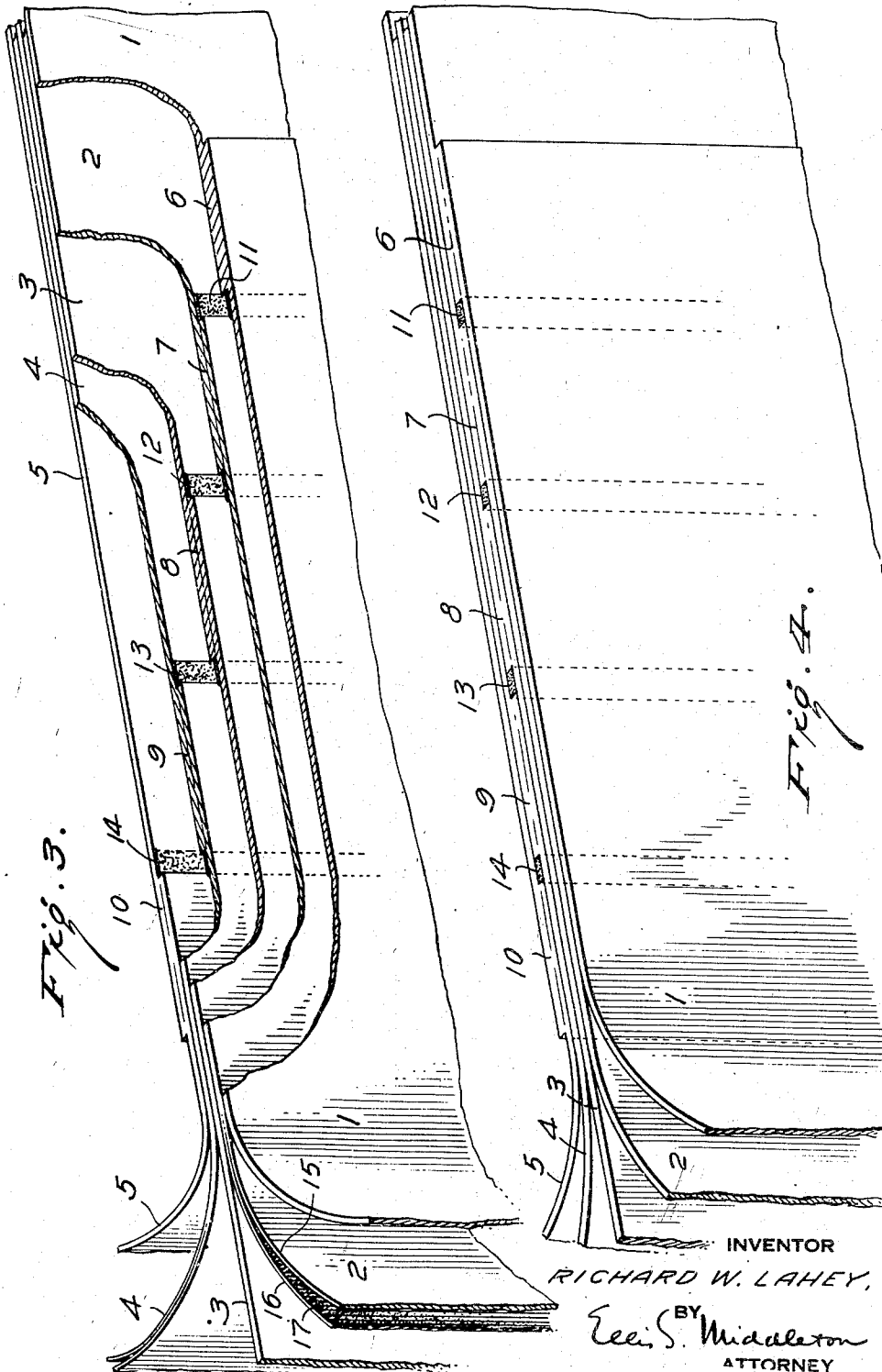
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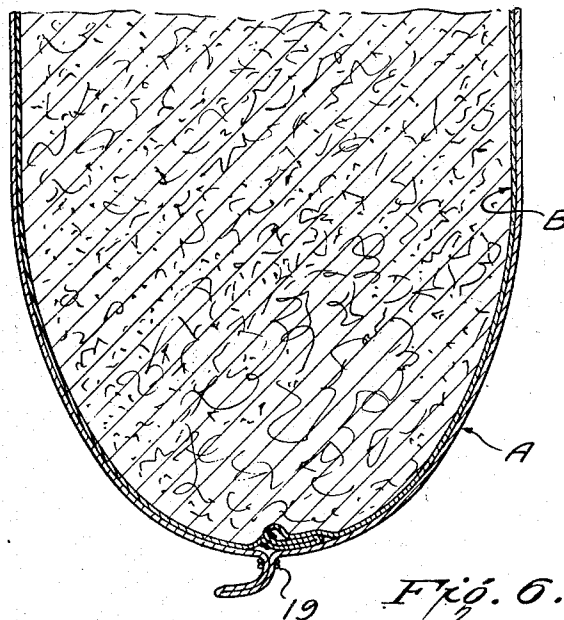
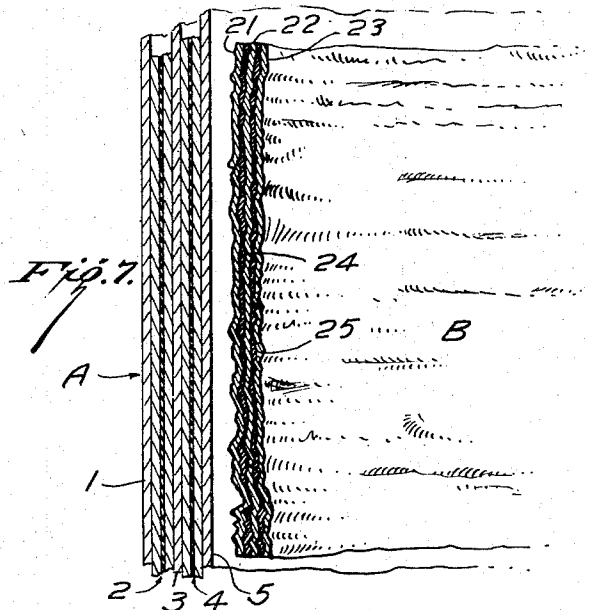
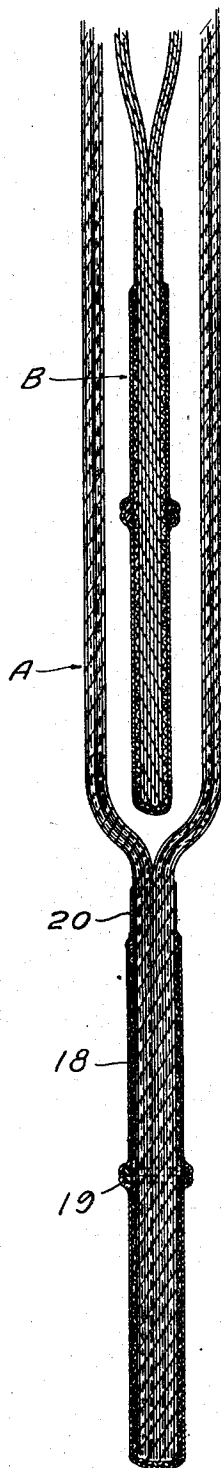
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MULTIWALL CONTAINER

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3 Sheets-Sheet 3



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MULTIWALL CONTAINER

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5 Claims. (Cl. 229—55)

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The present invention relates to a multiwall container of paper, fabric, or the like, which may serve for both shipping and storage of bulk materials.

The principal object of the present invention is to provide a container as above described which will be substantially water and water vapor resistant not only through the material of which it is made but also through its closed joints.

Another important object resides in the provision of a container from which the contents may be partially emptied and the package resealed with facility to give in a large measure the same degree of water-proofness which it had before it was opened.

These and other objects may be accomplished by providing a multiwall paper and/or fabric container which will, in effect, include an inner and an outer bag, the inner one of which is provided with a dispensing spout so arranged that it may be readily sealed against the entrance of moisture and upon removal of part of the contents, the spout may be tucked back in place to restore the container to a moisture and contamination proof condition, all without involving a cumbersome or expensive construction.

The invention further contemplates a container as above at a reduced cost, requiring less handling expense, lighter in weight and hence less expensive from the standpoint of transportation charges, of greater economy in storage and more easily emptied.

The invention further contemplates the use of an inner bag of an expansible material such as crepe paper and the like while the outer bag may be of a more rigid type of sheet such as kraft paper, fabric or a combination thereof.

The invention further contemplates the staggering of the overlaps on the individual plies in such a container so as to lend increased strength to the structure and to prevent the passage of moisture directly through all of the seams, or between the plies.

The invention further contemplates the novel combination, arrangement and construction of parts more fully hereinafter described and shown in the accompanying drawings in which:

Fig. 1 is a front elevation of a container embodying the present invention.

Fig. 2 is a view similar to Fig. 1 showing the sealing completed.

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Fig. 3 is a fragmentary perspective view showing the offsets in the overlaps between the several plies.

Fig. 4 is a view similar to Fig. 3.

Fig. 5 is a fragmentary sectional transverse view through the bottom seams of the inner and outer bags.

Fig. 6 is a fragmentary sectional view of the bottom area of the two bags when filled with a commodity.

Fig. 7 is an enlarged partial sectional view through the inner and outer casings showing the construction thereof.

Referring in particular to the preferred embodiment, the multiwall container of the present invention is provided with an outer bag A and an inner bag B.

The outer bag A may consist of a plurality of plies of paper, fabric or paper and fabric such as those shown at 1, 2, 3, 4 and 5 in Figs. 3 and 4, each ply being formed by having been folded on itself to form an overlap. In the form illustrated in Fig. 3, there are five such overlaps indicated respectively by the numbers 6, 7, 8, 9 and 10. As shown, it is highly desirable that these overlaps be parallel to the vertical axis of the completed bag and laterally spaced from each other in a staggered arrangement. This not only makes for strength but prevents a bulky side-seam which would occur were all of the overlaps coincident with each other.

The edges of each ply are fastened to each other as by adhesive 11 which is made to flow beyond the actual seam to cover an area 12 so that when overlaps 6 and 7 are placed together as in Fig. 4, the adhesive area 11 will secure plies 1 and 2 together. Thus, the adhesive 11 forms a dam against laterally leaking moisture between plies.

The same procedure is followed between each of the additional overlaps 8, 9, and 10 so as to form adhesive dams 12, 13 and 14.

Where desirable, one or more of the plies of the outer bag may itself be multiwalled. For instance, as shown in Fig. 3, ply 2 may consist of sheets of paper or fabric 15 and 16 with an intermediate layer of adhesive 17. Any number of these plies may be so constructed, to lend requisite strength and moisture-proofness to the whole bag.

The bottom of the outer bag may be sealed as shown in Figs. 1 and 5 for instance, by means

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of a tape 18 stitched as at 19 and then dipped in or contacted with paraffin or other thermoplastic water repellant material so as to form a coating 20 over the end of the bag, the tape, and the stitching to form a water tight joint.

The inner bag B preferably comprises multiplies of stretchable material such as crepe paper although in some instances kraft paper or textiles may be used. In Fig. 7 the inner bag is shown to consist of three plies of crepe paper 21, 22 and 23 with intermediate layers of adhesive 24 and 25.

The use of an inner bag B of extensible material such as crepe or fabric paper is highly desirable inasmuch as this permits the bag to take up any inequalities when filled with flowable materials and to thereafter remain snugly against the comparatively rigid outer bag A.

The inner bag may be finished off as to overlaps and bottom in much the same way as directed for the outer bag.

It is of particular advantage, however, that the inner bag should be provided with a dispensing spout 26 (Fig. 1). This is formed by merely cutting the paper or fabric of which the bag is to be made of such a shape that a neck is provided thereof which extends outwardly beyond the top of the outer bag. A sealing tape 27 is stitched to the upper section of the inner bag and stitched and water-proofed as above described.

It will be apparent from Fig. 2 that the inner bag having been filled by inserting a flowable commodity through the open spout 26, the latter may then be folded over and tucked in between the outside of the inner bag to which it is attached and the inside of the outer bag, so that the upper edge of the outer bag is free to have applied thereto the tape 27 with its stitching 28 and water-proof coating 29.

Due to the fold in the neck 26 when tucked in place, the contents are insured against spillage, and the entrance of water, moisture, dust, fibre or other contaminants is prevented. Nevertheless, the contents of the inner bag are made quickly available by unfolding the spout.

It will be noted that in addition to the provision of a strong, simply constructed multiwall container which may accommodate itself to the shape of a bulky material due to the inner stretchable bag, but because of the construction of the spout on the inner bag, the contained material may be partially dispensed therefrom and the neck then folded and tucked back in place so as to return the inner bag to its initially water proof condition. This makes possible the taking of a sample for analysis prior to shipping, or sampling of the contents of a bag in storage from time to time without completely ripping off the sealing means which has been necessary heretofore. It also makes possible the temporary sealing against the leakage of moisture or other contaminating material with all of the efficiency heretofore only secured through a permanent seal.

It will, of course, be observed that due to the heavy and waterproof construction of the inner bag, the contents may be kept in perfect condition in storage prior to shipment with only the spout seal and without sealing the outer container. When ready for shipment, however, the outer bag seal is applied and the complete package ready to withstand rough handling, shipment and weather conditions usually attendant in transportation.

When the package reaches its destination, it

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may remain intact for long periods of time as is without damage to its contents. The contents may thereafter be totally emptied or only partially dispersed. If the latter, by tucking in the spout 26, the inner bag is effectively resealed. This operation may be repeated as often as desired until the contents have been completely used up.

While the invention has been described with reference to specific embodiments yet the invention is to be construed broadly and limited only by the scope of the claims.

What is claimed:

1. In combination, an inner multi-ply flexible bag carrying a flowable commodity, an outer multi-ply flexible bag completely enclosing the inner bag, the latter having a spout of less width than either bag and projectible through one edge of the outer bag when extended, folded over against itself and tucked in between the adjacent sides of the outer and inner bags, the edge of the outer bag through which the spout projects when extended being sealed, the adjacent edge portion of the inner bag clearing said sealing means the spout being extensible through the upper edge of the outer bag when the latter is opened to an extent equal to the width of the spout but less than the width of the inner bag body.

2. In combination, an inner multi-ply flexible bag having a body and a spout, an outer multi-ply flexible bag completely enclosing the inner bag body, the outer bag having an open edge, the inner bag spout of less width than either bag and projecting through the open edge of the outer bag, the upper edge of the inner bag when the spout is folded over against the bag body being within the outer bag a sufficient extent to clear and permit the sealing of the said edge of the outer bag the spout being extensible through the upper edge of the outer bag when the latter is opened to an extent equal to the width of the spout but less than the width of the inner bag body.

3. In combination, an inner multiply flexible bag having a body and a spout, an outer multiply flexible bag completely enclosing the inner bag body, the outer bag having an open edge, the inner bag spout being of less width than either bag and projecting through the open edge of the outer bag, the upper edge of the inner bag when the spout is folded over against the bag body being within the outer bag a sufficient extent to clear and permit the sealing of the said edge of the outer bag, the spout being extensible through the upper edge of the outer bag when the latter is open to an extent equal to the width of the spout but less than the width of the outer bag body.

4. The combination of claim 3 in which each bag has a lower edge individually sealed.

5. In combination, an inner multiply extensible bag having a body and a spout, an outer multiply comparatively rigid bag completely enclosing the inner bag and having an open edge, the inner bag spout projecting through the open edge of the outer bag, the upper edge of the inner bag when the spout is folded over against the bag body being within the outer bag a sufficient extent to clear and permit the sealing of the said edge of the outer bag, the spout being extensible through the upper edge of the outer bag when the latter is open to an extent equal to the width of the spout but less than the width of the outer bag body, the extensible material of the inner bag permitting the bag to take up any inequali-

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ties when filled with flowable material and to thereafter remain snugly against the comparatively rigid outer bag.

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