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CONTAINER

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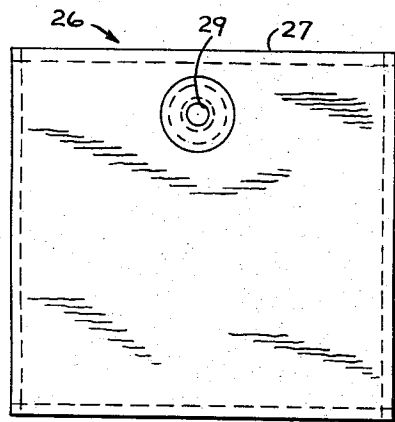


FIG. 2.

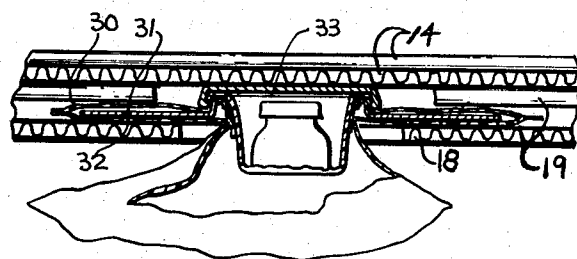
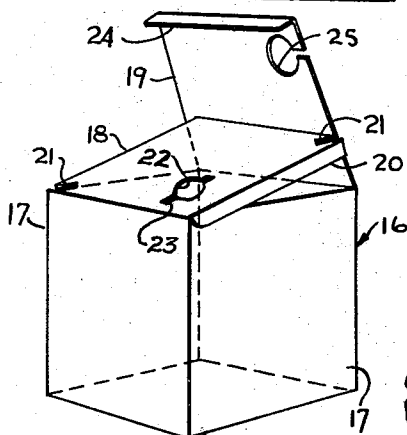
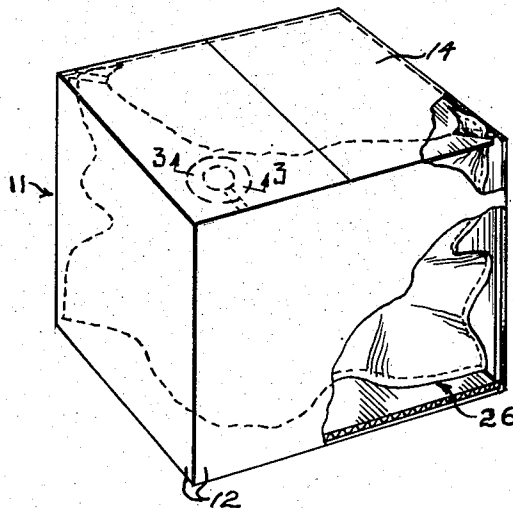
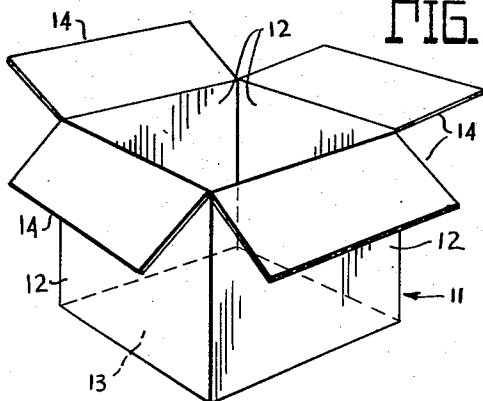


FIG. 1.

FIG. 3.



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CONTAINER

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3 Claims. (Cl. 229—14)

This invention relates to an improved shippable container.

The present invention provides a container especially adapted for flowable materials such as liquids or powders, and particularly for liquids such as syrups, chemicals, oil and acids. Most acids today are shipped in heavy bottles carried in wooden frames. The bottles are subject to breakage, of course, and the composite container is bulky and heavy, thus adding materially to the cost of shipping. These containers are also expensive to manufacture and costly to ship from the bottle manufacturer to the acid manufacturer because the empty bottles still consume the same amount of space as when full. This problem also exists if the bottles are shipped back to the acid manufacturer from the customer.

In contrast, a container according to the invention basically includes a foldable carton and an oversized plastic bag, both of which can be shipped in a flat state to substantially reduce shipping costs and set up for filling by unskilled labor. The new bag is made of a suitable material that can withstand attack from the material it carries and is substantially unbreakable. If the container is struck with a hard blow or dropped, the carton will withstand a substantial initial impact and the oversized bag, which is not completely filled with material, can also withstand a substantial blow without breaking.

The new container is also relatively inexpensive because it is made of inexpensive materials and is relatively simple to manufacture, requiring substantially no heavy machinery and involving relatively simple processing steps.

It is, therefore, the primary object of the invention to provide an improved shippable container which can be shipped in a flat state when not filled with material.

A further object of the invention is to provide a shippable container which can withstand severe impact forces without breaking.

Still another object of the invention is to provide a shippable container which is inexpensive to manufacture.

Other objects of the invention will be apparent from the following detailed description of a preferred embodiment thereof, reference being made to the accompanying drawing, in which—

Fig. 1 is an exploded view in perspective showing the various parts of a container according to the invention;

Fig. 2 is a view in perspective with parts broken away, showing a flexible bag disposed in a carton and attached to an upper wall thereof; and

Fig. 3 is a view in cross section taken along the line 3—3 of Fig. 2.

Referring to Fig. 1, a shippable container according to the invention includes an outer carton 11 having side walls 12, a bottom 13, and flaps 14, all of which can be made of a single sheet of any suitable, reasonably rigid material, such as corrugated board. A separate reinforcing bottom sheet 15 can be employed to provide

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added strength and shock resistance for the carton 11. If desired, the separate bottom sheet can be made a part of a liner 16 which fits within the carton 11 and includes side walls 17, a first top 18, and a second top 19. The first top 18 has side tabs 20 which are insertable between the opposed side walls 17 of the liner and the side walls 12 of the carton. The top 18 also has spaced slots 21, which are preferably at the corners thereof, and a hole 22 with diametrically opposed notches 23 is located between the slots but offset to a straight line between the slots 21. The second top 19 has an end tab 24 insertable between one of the side walls 17 of the liner 16 and one of the side walls 12 of the carton 11, and also has a hole 25 which is aligned with the hole 22 when both of the tops 18 and 19 are closed. The liner is preferably made slightly shallower than the outer carton in which it is contained so that, when the tops 18 and 19 are folded down and the closure hereinafter described is put in place, the underface of the carton flaps 14 will lie in a plane confining the liner against movement.

A flexible bag 26 is provided which is inserted within the liner 16 and is oversized with respect to the liner and the carton 11 so that it is fully supported on the bottom sheet 15, and the side walls 17 of the liner 16. With the bag oversized, it cannot be filled to a greater extent than the volume defined by the carton 11 which enables the bag to more readily withstand impact forces during handling. Thus there are no stretching forces exerted on the bag material and the weight of the contents is taken by the carton 11.

The bag 26 is preferably made of two or more heavy sheets 27 of the same or different suitable flexible material, such as polyethylene which can be two-ply or more for greater strength and integrity, but in any case must be inert to, or able to withstand attack on the material carried within. The sheets, which are of similar size and shape, are heat sealed or otherwise suitably joined along all four edges and a hole 29 is made in one of the sheets 27 near the upper edge thereof. The filling opening for the bag is formed by hole 29 as hereinafter described.

Two annular walls 30 and 31 (Fig. 3), preferably of the same material as the bag 26, are joined together at their inner and outer peripheries to form an annular space therebetween, and are further joined at their inner peripheries to the periphery of the hole 29. Into the envelope thus formed an annular flange 32 forming the stationary portion of a filling device is placed in the annular space before the walls 30 and 31 are joined. A suitable removable closure device 33 is removably disposed in the hole 29 and cooperates with the flange 32 to complete the structure through which the bag 26 may be filled and emptied.

In assembly, the liner 16 is placed in the carton 11 with the bottom edges of the side walls 17 supported on the bottom sheet 15 and bottom 13 to thereby provide support for the first and second tops 18 and 19. With the tops open, the bag 26 is placed within the space formed by the side walls 17 of the liner 16 with upper corners 34 of the bag located under the slots 21. The flange 32 of the filling device is then turned at an angle to the first top 18 and inserted through the hole 22 and the notches 23. After being pulled through the hole and the notches, the flange is turned parallel to the first top 18 and cannot be pulled back through because the flange 32 is larger than the hole 22. The side wall of the bag is thus anchored in an open position separated from the other side wall. Before the first top 18 is closed, the upper corners 34 of the bag 26 are pulled through the slots 21 and frictionally engaged therein. The corners of the bag are thus separated from the anchored central portion of the side wall which has been fixed by

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flange 32. With the first top sheet moved to its horizontal position the second top 19 is then closed which enables it to press downwardly on the corners 34 extending above the first top 18 and thereby more securely hold these corners in the slots 21. The second top 19 also adds overall rigidity to the container 11. If desired, a puff of air can be blown into the empty container to expand it prior to filling.

With both tops closed and the closure device 33 removed, the bag 26 is filled with the desired material through the hole 29. The sheets 27 forming the bag are maintained in spaced relationship because the corners 34 are held in the slots 21 and the hole 29 in the sheet 27 is aligned with the hole 22 in the first top 18 which separates the sheets 27 forming the bag 26. In this manner, the oversized bag 26 can be filled with liquid or powder without the possibility of doubling over and enabling only a portion to be filled. After the bag 26 is filled, the closure device 33 is replaced and the flaps 14 are closed and sealed to render the carton 11 ready for shipment.

It will be seen that the carton, the liner, and the bag can be shipped in a flattened state from the container manufacturer to, say, a manufacturer of acid to maintain shipping costs at a minimum. The container can then be quickly assembled by unskilled persons and filled. The cubical configuration of the container, plus the fact that there is no extended spout, enables a maximum volume of liquid to be shipped in a given space. Further, if the container is dropped, the carton will absorb the initial shock subjected thereto and the oversized bag will withstand further shock even if the carton breaks because the bag is only partially filled. The new container is inexpensive and can be economically disposed of after use, so that it represents a "single trip" container in contrast to the expensive returnable carboys that are now used.

It will be readily seen that the invention basically comprises wall means comprising a carton, an over-sized flexible bag disposed in said carton, a top wall supported by said carton, said top wall having means for engaging spaced, preferably corner, portions of the bag and having other means for engaging a side wall of the bag defining an opening therein to hold the side walls of the bag apart.

Many modifications of the above specific form of the

invention will be apparent to those skilled in the art, and can be made without departing from the scope of the invention as described in the appended claims.

What I claim is:

5 1. A container comprising a carton, a bag having upper corners and an opening in a side wall thereof, means forming a flange around said opening, a top wall supported by said container having spaced means near diagonally opposite corners of said top wall for frictionally engaging and supporting the upper corners of said bag and having means near another corner of said top wall for engaging said flange means and supporting an intermediate portion of said bag with the opening in said bag aligned with a hole in said top wall, whereby said bag 10 can be filled with material substantially equal in volume to the space defined by said carton.

2. A container comprising wall means defining bottom and side walls, a top wall supported by said wall means and having a hole near one corner and slots near adjacent corners, a flexible bag resting on the bottom wall of said carton, said bag having upper corners frictionally received in said slots and having a filling opening in a side wall thereof, and means associated with said filling opening for supporting a portion of said bag with said opening aligned with the hole in the top wall.

3. A container comprising wall means defining bottom and side walls, a top wall supported by said wall means and having a hole near one corner and slots near adjacent corners, a flexible bag resting on the bottom wall of said carton, said bag having upper corners frictionally received in said slots and having a filling opening in a side wall thereof, means associated with said filling opening for supporting one side wall portion of said bag with said opening aligned with the hole in the top wall, and 35 cover means disposable over said top wall to cover said bag corner portions and said filling opening.

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