

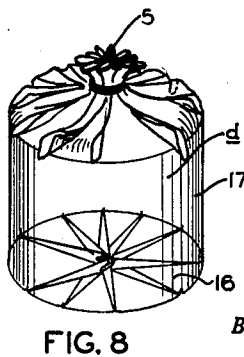
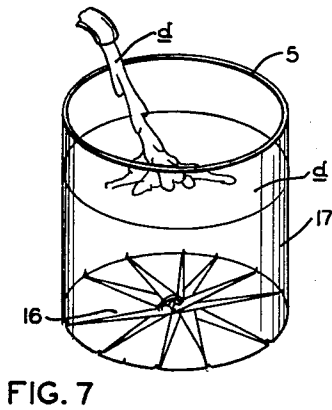
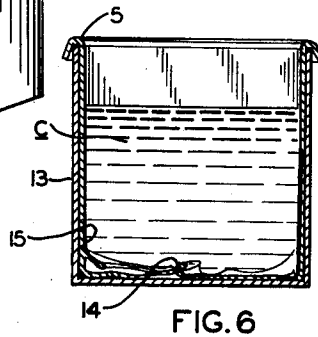
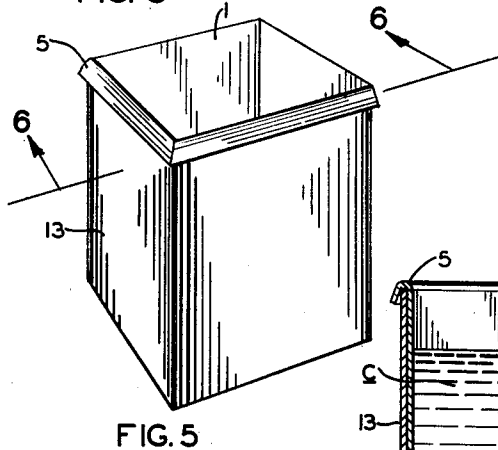
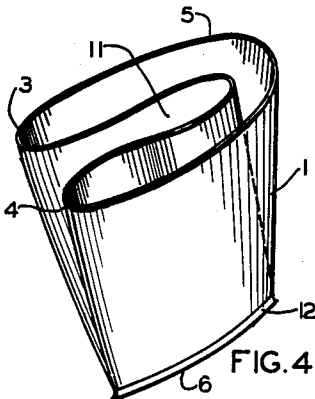
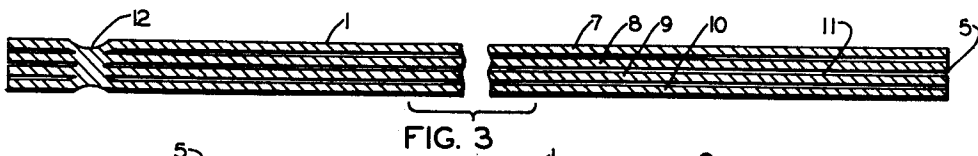
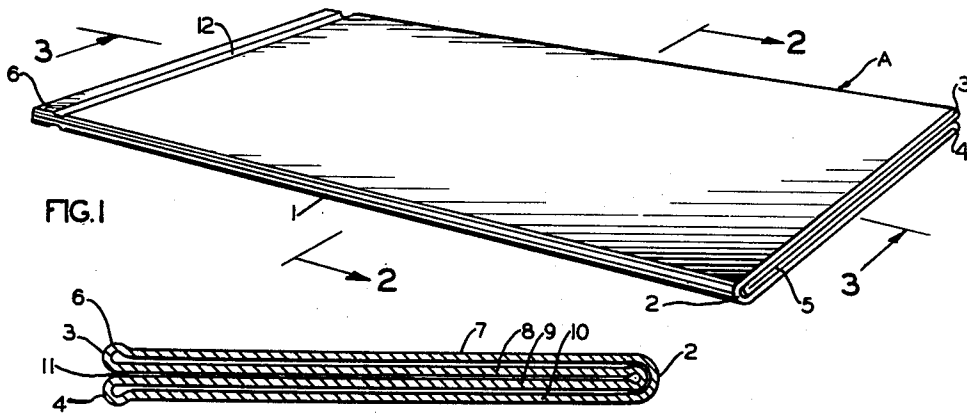
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2,915,098

SELF-CONTOURING BAGS

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1

2,915,098

SELF-CONTOURING BAGS

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4 Claims. (Cl. 150—.5)

This invention relates to certain new and useful improvements in bags and, more particularly, to a self-contouring bag.

It has become a common practice for manufacturers of liquid chemicals, finely divided powders, semi-solid materials, and the like, to package these materials in corrugated boxes or similar paper containers. However, ordinary containers of this type are quite porous and will not satisfactorily hold such materials. Consequently, it is necessary to apply to the interior of the container a suitable fluid resistant coating, or, alternatively, to use a plastic bag-like liner or insert within the container. In the latter case, the liner is inserted into the container prior to filling and is supported, during the filling operation, by the bottom and side walls of the container. Moreover, liners of this type must conform to the contour of the container and, therefore, must be manufactured in various sizes and shapes corresponding to the size and shape of the container. In manufacturing liners of this type, it is usually necessary to set up a forming mandrel and thereafter cut the plastic sheet material into the required number of pieces after which they are secured together on the mandrel. Consequently, the manufacture of these liners is essentially a hand operation since a different mandrel and different sizes and shapes of pieces are needed for each type of container with which the liner is to be used. It has also been found that where the liners are constructed of thin polyethylene or polyvinyl sheet material, the walls of the container do not adequately support the liner as it is being filled with the result that there is a tendency for the walls of the liner to collapse and thus necessitate that the walls be uprighted before the filling operation can continue.

It is, therefore, one of the objects of the present invention to provide a bag which is particularly adaptable for use as a container liner and is capable of self-contouring so as to conform to the shape of the container.

It is also an object of the present invention to provide a bag of the type stated which is highly flexible and, at the same time, will not collapse within the container.

It is an additional object of the present invention to provide a flexible plastic bag of the type stated which, in the unopened position, is flat, but is, nevertheless, capable of assuming an unsupported upstanding position when partially filled.

It is a further object of the present invention to provide a bag of the type stated which is relatively simple in construction and can be mass produced with existing bag-making machinery.

With the above and other objects in view, our invention resides in the novel features of form, construction, arrangement, and combination of parts presently described and pointed out in the claims.

In the accompanying drawing:

Fig. 1 is a perspective view of a self-contouring bag constructed in accordance with and embodying the present invention;

2

Figs. 2 and 3 are sectional views taken along lines 2—2 and 3—3 of Fig. 1;

Fig. 4 is a perspective view of the bag partially opened up;

Fig. 5 is a perspective view of the bag inserted within a container;

Fig. 6 is a sectional view taken along line 6—6 of Fig. 5;

Fig. 7 is a perspective view similar to Fig. 4 and showing the bag partially filled; and

Fig. 8 is a perspective view of the bag completely filled and sealed at its upper end.

Referring now in more detail and by reference characters to the drawing, which illustrates a preferred embodiment of the present invention, A designates a self-contouring bag comprising a tubular body 1 preferably formed of polyethylene, polyvinyl chloride, or other suitable plastic sheet material of relatively thin gauge. The body 1 is lengthwise folded along a central fold line 2 so as to form aligned margins 3, 4, an open-mouthed upper end 5 and a transverse bottom margin 6. Thus, when the bag A is unopened, it will assume a flat rectangular shape, as shown in Figs. 1-3, and will comprise four superimposed plies 7, 8, 9, 10, which are marginally connected in successive order and form a central gusset 11. A short distance upwardly from the bottom margin 6, the plies 7, 8, 9, 10, are all joined together by a transversely extending heat-seal 12.

In use, the bag A is open, as shown in Fig. 4, and inserted into a container 13 whereupon the liquid, semi-solid, or powdered material c is poured into the bag A. As the bag A becomes partially filled, the weight of the material c will cause the plies 7, 8, 9, 10, to spread apart, except at the lower end of the bag where, due to their flexibility, they overlap at random and form a bottom wall 14, which fits conformably against the bottom wall of the container 13. Similarly, the plies 7, 8, 9, 10, form upstanding side walls 15, which fit against the side walls of the container 13. As further material c is charged into the bag A, the side walls 15 will remain upstanding and will not collapse and, when filled, the open end 5 of the bag A may be heat-sealed or otherwise closed. In connection with the present invention, it should be noted that sometimes the material will not partially fill the bag A evenly, in which case it is merely necessary to lift the bag A and shake it once or twice to allow the material to spread out over the lower end of the bag so that the weight of the material spreads the plies 7, 8, 9, 10, and forms the bottom wall 14. As the bag A is placed back into the container 13, the bottom wall 14 will conform to the contour of the bottom of the container. It will also be apparent that while the container 13 is illustrated as being rectilinear in shape, the bag A will conform to the interior walls of containers of other shapes so long as the perimetral dimensions of the walls thereof do not exceed the sum total of the widths of the plies 7, 8, 9, 10.

The bag A may also be utilized as a container apart from its use as a liner, as shown in Figs. 7 and 8. For example, in the manufacture of ice cream, the bag A may be opened up and filled with viscous ice cream d as the latter comes from the mixer. As soon as the bag is partially filled, it may be lifted up and lightly shaken a few times, allowing the weight of the ice cream d to spread the plies 7, 8, 9, 10, at the bottom of the bag A and form a flat bottom wall 16 and cylindrical side walls 17. As the ice cream d continues to fill the bag A, the side wall 17 will remain upstanding and self-supporting, notwithstanding that the plies 7, 8, 9, 10, are of thin gauge, plastic material. Upon completion of the filling, the open end 5 may be heat-sealed or clamped and thereafter the cylindrical package placed in the

3

freezer. In addition to ice cream, other viscous fluids or powdered materials can be packaged into the self-forming bags A in the manner just described.

It will also be apparent that the bag A can be readily manufactured in large quantities utilizing existing bag-making equipment. Thus, the tubular body 1 may be initially formed by conventional polyethylene extrusion processes after which it is merely necessary to fold the tubular body 1 lengthwise and form the heat-seal 12 adjacent one transverse margin thereof. The bags A can be made in a limited number of sizes in accordance with the height and perimeter of the containers 13 with which the bags A are to be used. The thickness or gauge of the plastic material used can vary over a relatively wide range so long as the plastic possesses sufficient flexibility to allow the plies 7, 8, 9, 10, to readily overlap to form the bag bottom as the bag is being filled.

It should be understood that changes and modifications in the form, construction, arrangement, and combination of the several parts of the self-contouring bag may be made and substituted for those herein shown and described without departing from the nature and principle of our invention.

Having thus described our invention, what we claim and desire to secure by Letters Patent is:

1. A self-contouring bag comprising a flexible tube having one transverse end open and being folded lengthwise in the provision of a flat multiple-ply body, said plies forming a gusset extending along one longitudinal margin of the body, and said plies being secured together adjacent the other transverse end of the tube.

4

2. A self-contouring bag comprising a flexible tube having one transverse end open and being folded lengthwise along a central fold-line in the provision of a flat multiple-ply body, said plies forming a gusset extending along one longitudinal margin of the body, said body being provided at its other end with a transverse seam securing said plies together.

3. A self-contouring bag comprising a flexible tube having one transverse end open and being folded lengthwise along a fold-line in the provision of a flat multiple-ply body in which the fold-line forms one longitudinal margin of said body, said plies forming a gusset extending along the other longitudinal margin of the body, and said body being provided at its other end with a transverse seam securing all of said plies together.

4. A self-contouring bag comprising a flexible polyethylene tube having one transverse end open and being folded lengthwise along a fold-line in the provision of a flat multiple-ply body in which the fold-line forms one longitudinal margin of said body, said plies forming a gusset extending along the other longitudinal margin of the body, and said body being provided at its other end with a transverse heat-seal securing all of said plies together.

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