

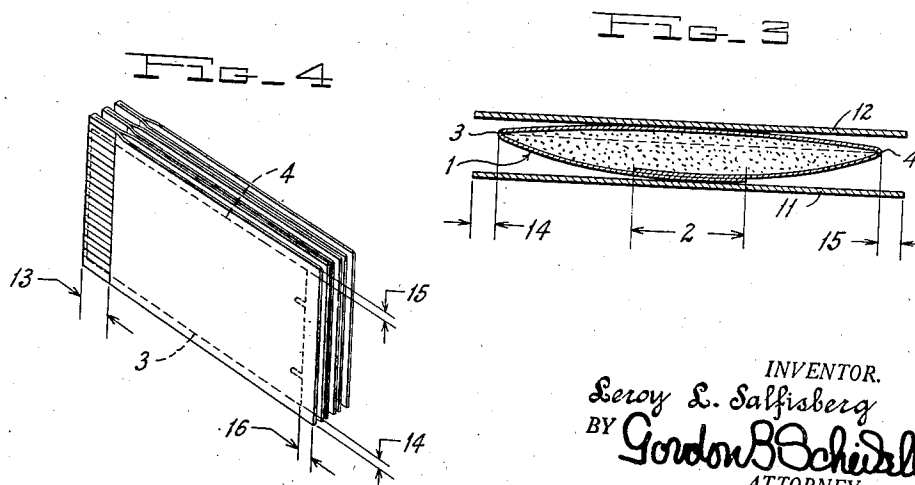
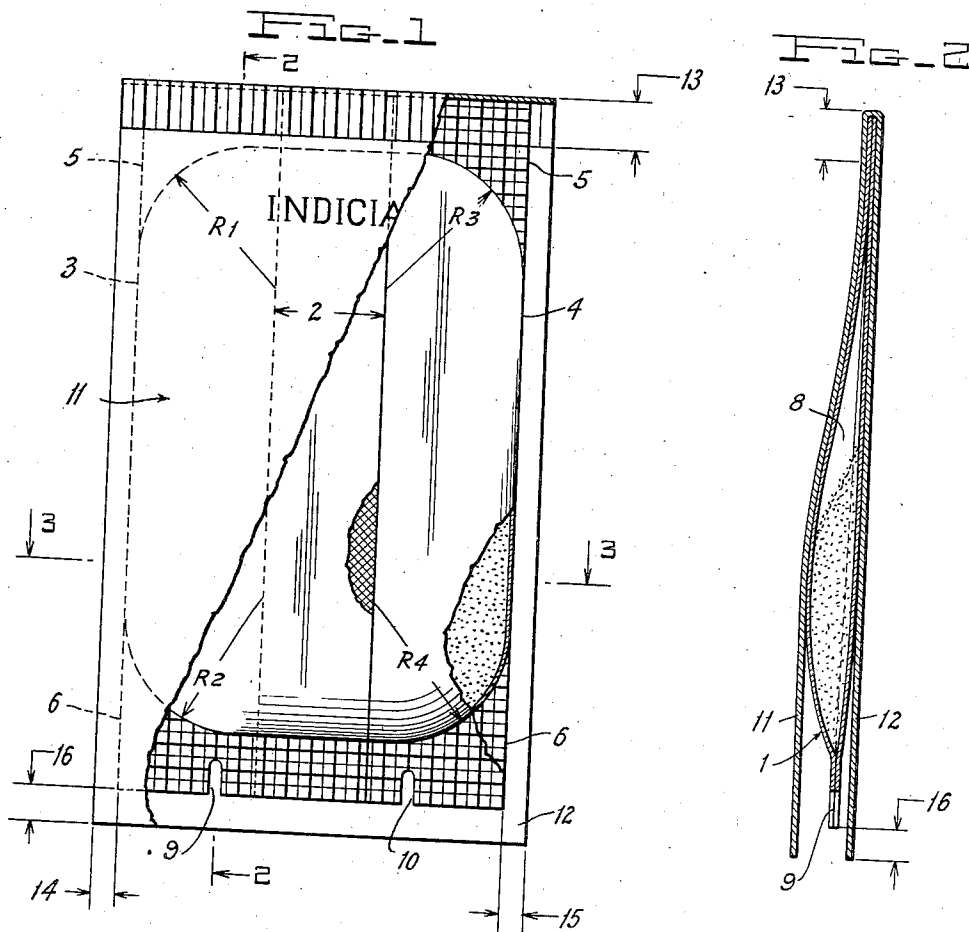
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POWDER PACKAGE

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POWDER PACKAGE

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3 Claims. (Cl. 206—46)

This invention pertains in general to packages for dispensing individual quantities of fluid commodities, such as pharmaceutical powders and the like.

The principal object of the invention consists in providing an envelope structure for containing free flowing commodities such as powders and the like, and designed to avoid deleterious effects caused by free flowing commodities in envelope structures.

A still further object of the invention comprises providing an envelope provided with guard members for preventing damage to the edges of the envelope.

A still further object consists in producing a package of tubular envelope formation with special sealing flanges to produce a containing pocket and adapted to evenly distribute the stresses caused by the contained fluid commodity.

These and other objects will be apparent from the following, reference being had to the accompanying drawing in which like reference numerals designate corresponding parts and in which:

Fig. 1 is a view of one embodiment of the package of the invention, with portions thereof cut away to show the inner structural arrangement;

Fig. 2 is a longitudinal sectional view of the package taken along the line 2—2 of Fig. 1;

Fig. 3 is a transverse sectional view of the package taken along the line 3—3 of Fig. 1; and

Fig. 4 is a view of several of the packages depicted in Fig. 1 as disposed in a packing arrangement, utilizing features of the invention.

The present invention contemplates the provision of a container structure for fluids in the form of a package envelope having specially constructed seals adapted to confine the fluid within the envelope in a manner such as to avoid corner stresses caused by the contained fluid commodity, and which tend to cause an opening at the edges of the envelope. In accordance with the invention, an envelope in the form of a tube is provided at opposite ends with sealing flanges having inwardly facing circular contours. This tubular envelope is provided with guard sheets upon opposite sides to further prevent damage to the edges of the fluid containing envelope.

Referring to the drawing in detail, a sheet of packaging material 1 is longitudinally folded along both sides and the folded-over parts are brought into overlapping relation in the area 2 to form a longitudinally extending seal. This longitudinally extending seal effects the formation of a tubular structure having sharp longitudinal edges 3 and 4. The sharp edges 3 and 4

are essential to form a flat package when the tube is filled with a commodity, as shown in Fig. 3.

The material 1 may be composed of various substances, such as paper, transparent regenerated cellulose having a thermoplastic coating thereon, transparent thermoplastically sealable rubber, and the like. The sealing of the packaging material, in the case of thermoplastically sealable material, may be by heat and pressure, while, in the case of paper and substances of this type, the sealing may be by adhesive or cement, and pressure.

The overlapping area 2 is further sealed between spaced transverse sealing flanges 5 and 6 provided at both ends of the tubular structure. The flanges 5 and 6, extending across the package, comprise areas in which the opposed layers of the material 1 are firmly bonded or cemented together, and interlocked or interdigitated by 20 crimping dies so as to form a comparatively rigid unitary bonding formation.

The transverse sealing flanges 5 and 6 are of special contour or configuration. Generally speaking, these flanges are of substantially semi-circular formation in mutually inverted formations: specifically, each flange consists of two 25 radii. Flange 5 consists of the radii R_1 and R_3 beginning at tangent points on the boundaries of the area 2 and converging into the folded edges 3 and 4 of the tube structure. Similarly, the flange 6 is formed along a line defined by the radii R_2 and R_4 , beginning at tangent points along the boundaries of the overlapping area 2 and likewise converging into the edges 3 and 4 of 35 the tubular structure.

These radii face towards each other and towards the center of the pocket 8 formed in the tube structure. This special formation of the sealing flange structure provides a uniform distribution of stresses induced in the container by the freely flowing fluid contained within the pocket 8 and which exerts forces against the walls of the package structure. By virtue of such a structure, it has been found, by experiment, that powders and fluids may be safely 45 contained without opening the edges.

The flange 6 is provided with slots 9 and 10 for tearing into each of the rounded portions of the pocket 8 as defined by the radii R_2 and R_4 , 50 thereby permitting the discharge of the contained commodity.

The flange 5 is sealed between two sheets of material 11 and 12. These sheets 11 and 12 may be of a suitable material, such as pointed 55

out before in connection with the material 1. Sheets 11 and 12 may be separate sheets or, as shown in Fig. 2, a single sheet folded over the edge of the flange 5. The sheets 11 and 12 are sealed to, and interdigitated with, the flange 5 in a transverse area 13, and comprise guard sheets for protecting the edges of the package formed by the material 1. The guard sheets 11 and 12 extend beyond the transverse dimension of the inner envelope as represented by marginal areas 14 and 15. The ends of the guard sheets 11 and 12 also extend beyond the end of the inner package as represented by the marginal area 16.

The purpose of these guard sheets will be more readily apparent from Fig. 4, in which several of the completed package units are shown in the positions they would occupy when stored in a box or the like. As shown in Fig. 4, the edges 3 and 4 of the inner envelope of any one of the individual package units are protected by the guard sheets protruding in the areas 14 and 15. Likewise the ends of the envelope are protected not only by the sealing flanges 5 and 6, but these sealing flanges in turn are protected by the outer guard sheets 11 and 12.

The guard sheets may be provided with suitable indicia. For example, the guard sheet 12 may be provided with a trade-mark and/or advertisement of the manufacturer or seller of the contained commodity, and the guard sheet 11 may be provided with instructions for the use of the contained commodity. Various other forms of indicia, of course, may be provided as required.

Although a preferred form of powder package has been disclosed, it will be recognized that various changes and equivalent structures will occur to those skilled in the art, but which will not depart from the scope of the invention. Therefore, no limitation is intended except as pointed out in the appended claims.

What is claimed as new and original to be secured by Letters Patent of the United States is:

1. A fluid package comprising, a wall of sheet

packaging material longitudinally folded to form parallel folded edges with said material sealed together in a longitudinally extending area thereby forming a tubular contour, and spaced sealing flanges provided transversely of said tubular structure forming an inner pocket and having curved contours joining the transverse and longitudinal edges of the inner pocket of said envelope to evenly distribute the stresses caused by a contained freely flowing commodity.

2. A fluid package comprising, a first, wide sheet of packaging material and a second, narrower sheet of packaging material, both bonded together along one end, said first sheet of material being folded over upon itself to form longitudinal folded edges parallel with the edges of said narrower sheet but within the area of said second sheet so that said second sheet extends beyond said edges, the folded-over parts of said wider sheet being longitudinally sealed together in an overlapping area parallel with said folded edges, and spaced transverse seals forming an inner fluid containing pocket and having curved contours joining the longitudinal and transverse inner boundaries of the pocket formed in said envelope, said second sheet acting as a guard for said folded pocket-forming sheet.

3. A fluid package comprising, a layer of heat sealable sheet packaging material folded over upon itself to provide opposed walls with overlapping edges thereof longitudinally heat sealed together to form a sealing rib extending longitudinally of the package, and spaced transverse seals across said sealing rib to retain said walls and provide an inner fluid containing pocket, said transverse seals having curved contours joining the longitudinal and transverse inner boundaries of said pocket to effect an even distribution of the stresses in said walls (caused by the contained commodity) while retaining said sealing rib longitudinally of the package structure to further distribute the stress in said walls, as caused by the contained commodity.

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