

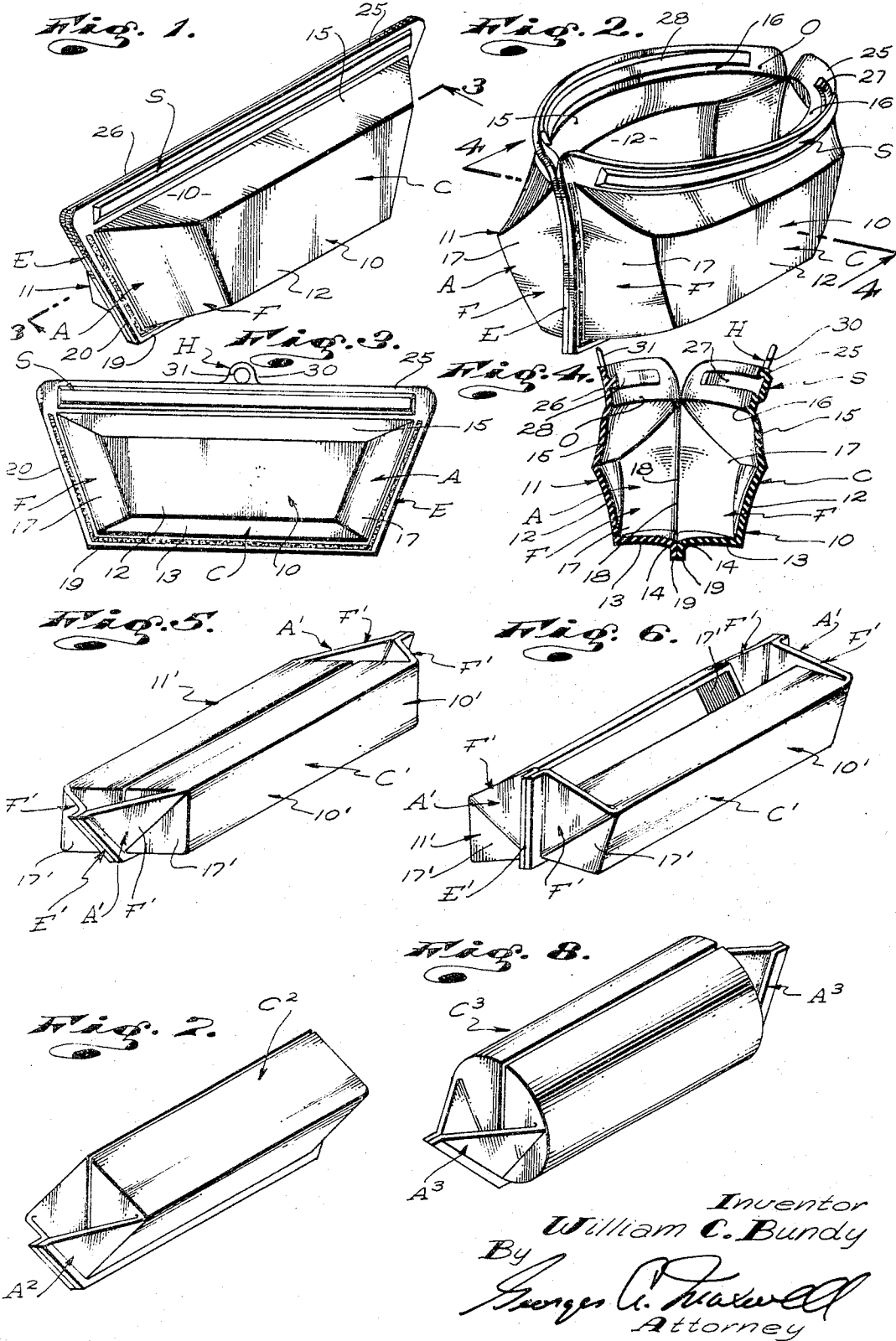
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CONTAINER CONSTRUCTION

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CONTAINER CONSTRUCTION

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ABSTRACT OF THE DISCLOSURE

An elongate, horizontally disposed uniting tubular pouch-type container of flexible plastic material having a central longitudinal slot opening along its top side, central longitudinal hinge means along the bottom side and manually operable pressure responsive opening means, said opening means including like oppositely disposed finger engaging means at the opposite ends of the container, each of said finger engaging means including flat, downwardly and longitudinally outwardly convergent flanges projecting longitudinally from an end of the container and intersecting and pivoting to define an upwardly and longitudinally outwardly inclined finger engaging edge, said slot opening, hinge means and finger engaging edges occurring on a common central longitudinal plane.

For many years, efforts have been made to provide practical and convenient to use receptacles or containers for small objects, such as pills, hairpins, fishing hooks, small electrical and/or mechanical parts and the like.

It has long been recognized that a container in the form of a small flexible pouch of rubber or plastic with the slot-like opening through which the item or items to be contained can be easily and conveniently moved, would be most satisfactory. Many attempts have been made to provide such flexible, pouch-like containers, but each such attempt has proven to be of limited success and questionable utility.

The principal difficulty or shortcoming found in those flexible pouch-like containers provided by the prior art resides in the fact that they normally yieldingly resist being opened and, when opened, yieldingly resist remaining in such opened condition. As a result of the foregoing, such containers are normally extremely difficult, awkward and troublesome to use, as the operator opening them must use fingers of both hands to pry and hold the containers open and must develop special and unique skills to operate and use such containers satisfactorily.

There have been several such containers provided by the prior art which have overcome the above noted shortcomings, but each has been of special and unique configuration which is such that it is only suitable for handling a very limited number of articles or is endowed with a special and unique rule of action which limits its satisfactory use to handling and containing objects or items of a special or unique type or nature.

As a result of the above, industry has not yet developed flexible, pouch-type containers for small parts and/or pieces, except for limited and special circumstances, and still uses small boxes, bags and the like as standard packaging means.

An object of this invention is to provide novel pressure responsive opening means for flexible pouch-type containers for small parts.

Another object of this invention is to provide a means of the character referred to that can be applied or related to containers of different and varying configuration.

Still another object of the present invention is to provide a pressure responsive opening means of the character referred to which includes like oppositely disposed means at the opposite ends of an elongate container and which

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are such that when both are engaged between the thumb and a finger of one's hand and squeezed or subjected to axial inward pressure, they cooperate to urge the container open, laterally of the direction in which the forces are applied.

It is an object of this invention to provide a means of the character referred to which functions uniformly and dependably in the manner set forth above without the necessity of the operator developing or exercising any special skill and/or care.

Yet another object of my invention is to provide a container of the character referred to with my new pressure responsive opening means and having sealing means related to the container and said opening means whereby the said opening means effectively and efficiently opens and/or releases the sealing means as the container is opened.

It is an object of the present invention to provide a pressure responsive opening means of the general character referred to which can be established by the end walls of the container with which said means is related or which, if desired, can be a means established by special and distinct structures formed integrally with or applied to a container construction.

Still further, it is an object of the present invention to provide a novel opening means of the character referred to which is such that it can be related to containers so as to effect opening of such containers without distortion of the containers or with limited and controlled distortion of parts or portions of the container, as desired or as circumstances require.

It is a further object of my invention to provide a novel pressure responsive opening means of the general character referred to which is subject to considerable variations in size, shape and configuration and is such that it can be advantageously varied to control the extent to which the container with which it is related is opened.

Finally, it is an object of my invention to provide an opening means of the character referred to which is easy and economical to manufacture, which is rugged and durable, and which is highly effective and dependable in operation.

The various objects and features of my invention will be fully understood from the following detailed description of typical preferred forms and applications of my invention, throughout which description reference is made to the accompanying drawings, in which:

FIG. 1 is a perspective view of a container embodying the present invention;

FIG. 2 is a view similar to FIG. 1 showing the construction in an open condition;

FIG. 3 is a view taken as indicated by line 3-3 on FIG. 1;

FIG. 4 is a sectional view taken as indicated by line 4-4 on FIG. 2;

FIG. 5 is a view similar to FIG. 1 showing another form of my invention;

FIG. 6 is a view of the structure shown in FIG. 5 and showing the construction in an open condition; and,

FIGS. 7 and 8 are views similar to FIGS. 1 and 5 showing other embodiments of the present invention.

The pressure responsive opening means A that I provide is adapted to be arranged or provided at the opposite end of an elongate, horizontally extending, flexible pouch-like parts receiving container C, which container has a longitudinally extending slot opening O along its top side, on the central longitudinal vertical plane of the container. The container C is adapted to be opened by urging the longitudinally extending, opposing edges of the container defining said slot opening, laterally outwardly and downwardly relative to each other.

The opening means A includes like finger engaging means at the opposite ends of the container C. Each of said finger engaging means includes a pair of longitudinally outwardly convergent, longitudinally and laterally outwardly and downwardly inclined flanges F, the outer edges of which are flexibly or pivotally joined to define longitudinally outwardly and upwardly inclined finger engaging edges E on the longitudinal central vertical plane of the container.

The outer edges E of the finger engaging means at the ends of the container C extend upwardly and longitudinally outwardly from the ends of the bottom side or edge of the container, occurring on the central longitudinal vertical plane of the container and along which said side or edge of the container flexes or pivots when the remainder of the container is moved to urge the opposing edges defining the opening O laterally outwardly and downwardly relative to each other, to effect opening of the container.

With the opening means A set forth above, it will be apparent that when the outer edges E of the means A are engaged between one's thumb and a finger and axial inward pressure is exerted onto said edges, the opposing, axially inwardly applied forces are divided by the longitudinally inwardly divergent flanges F and are directed laterally outwardly relative to the longitudinal axis of the container and in such a manner as to urge the sides of the container laterally outwardly in opposite directions.

Due to the upward and outward inclination of the outer edges E and the location of the points of joinder of the lower ends of the edges E with the bottom of the container, the edges E pivot or swing longitudinally inwardly and upwardly relative to the longitudinal axis of the container when squeezed between the thumb and finger of the operator, with greater longitudinal inward movement or displacement of the upper portions of the flanges F than the lower portions thereof. As a result, it will be apparent that the opening means serves to direct the opening forces applied therethrough to the upper portion of the container C, or at least the greater portion of said forces are so directed and greater axial inward movement, with resulting greater lateral outward movement of the means A occurs at the upper portion of the container than at the lower portion thereof. Accordingly, the upper opposing edges of the container defining the opening O are moved laterally outwardly and downwardly relative to each other a substantial distance to effect opening of the container and the lower central bottom side or edge of the container is only flexed or pivoted a sufficient extent to permit lateral outward and downward pivoting or flexing of the two longitudinal opposing halves of the container.

It is to be noted that as a result of the longitudinal inward divergent relationship of the flanges F, the flanges will not bend laterally outwardly upon application of pressure on the outer edges E and result in malfunctioning of the opening means A.

Further, it will be apparent that the opening forces need not be carefully directed onto the edges E. So long as the forces are applied longitudinally inwardly within the inside angle of the related flanges F, the opening means will function properly.

In practice, and as pointed out above, the opening means A can be advantageously applied to a number of different types and shapes of flexible pouch-type containers.

In FIG. 1 of the drawings, I have shown a container C of unique design with the means A incorporated therein.

The container C is a flexible pouch-type container made up of two like shell sections 10 and 11 suitably joined together. The shell sections are established of a suitable flexible plastic material, such as vinyl-acetate copolymer and can be made by injection molding.

Each section 10 and 11 includes an outer trapezoidal

sidewall 12 having straight parallel top and bottom edges and upwardly and longitudinally outwardly inclined end edges. The sidewall 12 is arranged in a vertical plane with its major dimension extending longitudinally of the construction.

Each section 10 and 11 has a substantially horizontal bottom wall 13 projecting laterally inwardly from the bottom edge of the sidewall 12 and defining a longitudinally extending laterally inwardly disposed bottom edge 14.

Each section 10 and 11 further includes a substantially horizontally disposed top wall 15 projecting laterally inwardly from the upper edge of the sidewall 12 and defining a longitudinally extending top edge 16.

Finally, each section 10 and 11 includes upwardly and laterally outwardly inclined end walls 17 between and joined with the ends of the side, bottom and top walls 12, 13 and 15 and defining laterally inwardly disposed end edges 18.

It is to be noted that the end wall 17 define the flanges F of the opening means A provided by this invention.

The two like shell sections 10 and 11 are arranged in opposing relationship with each other, with the several edges 14, 16 and 18 in juxtaposition and their related bottom and end edges 16 and 18 are suitably joined together.

In the preferred carrying out of the invention, the edges 16 and 18 are provided with downwardly and longitudinally outwardly projecting flanges 19 and 20 which flanges are bonded together by a suitable heat-sealing or electronic sealing operation to integrally join the sections along the bottom and end edges thereof.

The bonded together flanges 19 and 20 establish natural break lines between the sections which break lines are, in essence, flexible hinge means between their related walls. Accordingly, the bottom walls are hingedly joined or connected along their bottom edges 14 and the end walls or flanges F are hingedly joined or connected along their outer edges 18, that is, along the edges E of the means A.

It will be apparent that when the edges E at the opposite ends of the container C are subjected to substantially axially inwardly directed forces, as by one's thumb and a finger, the edges E are urged upwardly and longitudinally inwardly causing the flanges F to swing laterally outwardly and to thereby swing the sections 10 and 11 laterally outwardly and downwardly, opening the container as illustrated in FIG. 2 of the drawings.

In the form of the invention now under consideration, the container is distorted slightly when opened, but such distortion is controlled and limited. The ends of the top and bottom walls are extended beyond the ends of side walls, to join the end walls or flanges F of the means A. Further, the top walls are laterally inwardly and upwardly inclined slightly and the bottom walls are laterally inwardly and downwardly inclined slightly. The extended ends of the top and bottom walls provide added length to the top and bottom walls to facilitate flexing of said walls and the noted inclination of said walls provide for working clearance and control flexing of the several walls in a predetermined manner. As a result of the above, when the container is opened the side walls remain substantially undistorted and are pivoted laterally outwardly and downwardly relative to each other and the top and bottom walls flex, distort and pivot a sufficient extent to permit such relative movement of the side walls.

In operation, the end extensions of the bottom walls flex slightly, but the central main portions of said bottom walls are not distorted and pivot downwardly and inwardly relative to each other a slight amount. The side walls pivot or swing downwardly and outwardly a slight amount relative to their related bottom walls. The cumulative effect of the relative movement of the related bottom and side walls noted above, brought about by action of the means A, is sufficient to open the top of the container to an extent greater than the combined cross-sectional area of the two related bottom walls. The top walls of the container sections, by virtue of the connection of the extend-

ed end portions thereof with the upper edges of the flanges F, are flexed throughout their longitudinal extent and so that the inner edges thereof swing or are bowed laterally upwardly and outwardly relative to their outer edges, where they join their related side walls.

Since the side walls are distorted to an ineffectual extent when moved relative to each other, in the manner set forth above, it will be apparent that while some distortion of the container does take place, such distortion does not reduce or adversely restrict the normal useable inside dimensions of the container defined by the lateral spacing and the longitudinal and vertical extent of the side walls 12. That is, the vertical, lateral and longitudinal extent of the interior of the container defined by the lateral spacing and the longitudinal and vertical extent of the side walls of the container, when closed, is not reduced when the construction is opened.

In the preferred carrying out of my invention and as illustrated in the drawings, the container C is provided with suitable releasable sealing means S related to the slot-like opening O. The means S includes a flat vertical upwardly projecting longitudinally extending flange 25 along the upper inner edge 16 of section 10 and a similarly disposed flange 26 at and along the upper inner edge 16 of section 11. The flange 25 has a longitudinally extending laterally inwardly opening dove-tailed groove 27 and the flange 26 has a laterally inwardly projecting longitudinally extending dove-tailed projection 28 normally cooperatively engaged in the groove 27 and holding the flanges 25 and 26 together and holding the sections 10 and 11 in their closed positions.

Due to the soft flexible nature of the plastic material of which the container is established, it will be apparent that the projection 28 can be yieldingly snapped into and out of engagement in groove 27.

It will be further apparent that the opening means A that I provide, by directing the axial forces applied thereto laterally outwardly into and through the sections 10 of the container, at the ends thereof, is such that it affects easy and dependable separation of the sealing means S. This separation or unsealing action is enhanced by the fact that the means A serves to initially separate the projection 28 from the groove 27 at the ends of the construction and thereafter progressively disengages the projection from the groove, longitudinally inwardly from the opposite ends of the construction.

In practice, if desired and as illustrated in FIGS. 3 and 4, the container can be provided with a hanger means H to facilitate releasably hanging the container C on a rod or pin, such as a pin projecting from a Peg Board display rack or the like.

The means H is a split eye type means and includes an upwardly and longitudinally inwardly and downwardly recurvant hook part 30 on the flange 26, intermediate the ends of the construction and an oppositely disposed upwardly and longitudinally inwardly and downwardly recurvant hook part 31 on the flange 25, adjacent the central portion thereof. The hooks 30 and 31 are oppositely disposed and are arranged so that their inwardly and downwardly turned ends normally occur in lapped side by side relationship to define an eyelet or ring. The eyelet or ring of the means H is such that it can be released from engagement on or about the rod or pin with which it is related by simply pulling the container C laterally relative to the axis of the rod or pin.

In the form of the invention shown in FIGS. 5 and 6 of the drawings, the container C' is a rectangular box-like container having opposing laterally inwardly opening box-like sections 10' and 11' with flat end walls 17' normal to the axis of the container. The sections 10' and 11' are hingedly connected together along their bottom edges in the same manner as in the first form of the invention.

The pressure responsive opening means A' in this form of the invention is separate from the end walls 17, rather

than being established thereby as in the first form of the invention. The means A' includes a longitudinally and laterally outwardly and upwardly inclined flange F' on each end of each section 10' and 11'. The flanges F' at the related ends of the sections 10 and 11 converge with each other as they project longitudinally outwardly and are joined together to define the longitudinally outwardly and upwardly inclined finger engaging edges E' of the means A', as in the first form of the invention.

In this form of the invention, the edges E' defined by the outer edges of the flanges F' occur on the central longitudinal vertical plane of the container and join and continue outwardly and upwardly from the opposite ends of the hingedly connected bottom edges of the container sections 10' and 11'. The pair of flanges F' at each end of the container C' are longitudinally inwardly divergent relative to the longitudinal axis of the container and are disposed laterally and longitudinally outwardly and downwardly. Accordingly, when the means A is operated to shift edges E longitudinally inwardly the flanges shift laterally outwardly in opposite directions to a flat common plane extending transverse the longitudinal axis of the construction and, by virtue of the fact that their combined upper lateral extent is greater than their combined lower lateral extent (which diminishes to zero), pivot the container sections 10' and 11' laterally outwardly and downwardly relative to each other, about the axis defined by the lower hinge connection between the sections.

It is to be noted that in this second form of the invention the wing-like flanges F' are triangular, while in the first form of the invention the flanges F are trapezoidal in form and are, in effect, truncated triangular flanges.

The means A in this second form of the invention functions in substantially the same way as the means A in the first form of the invention and is, in the broad or generic sense, the same as the means A in the first form of the invention.

In this second form of the invention, the container sections 10' and 11' are free of any distortion when the container is opened by the means A'.

FIG. 7 of the drawings shows the same structure as in FIGS. 5 and 6 of the drawings, but with the container C-2 rotated 90 degrees relative to the operating means A-2.

FIG. 8 of the drawings shows the opening means A-3 provided by this invention applied to a cylindrical container C-3 and clearly shows that the opening means that I provide is such that it can be related to container constructions of varying shape and/or configuration.

Having described my invention, I claim:

1. An elongate horizontally disposed unitary tubular pouch-type container of flexible plastic material having a central longitudinal slot opening along its top side, central longitudinal hinge means along the bottom side and manually operable pressure responsive opening means, said opening means including like oppositely disposed finger engaging means at the opposite ends of the container, each of said finger engaging means including flat, downwardly and longitudinally outwardly convergent flanges projecting longitudinally from an end of the container and intersecting and pivoting to define an upwardly and longitudinally outwardly inclined finger engaging edge, said slot opening, hinge means and finger engaging edge occurring on a common central longitudinal plane.

2. A structure as set forth in claim 1 in which said tubular container is established of two opposing shell sections, one flange of each finger engaging means is formed integrally with its related end of its related shell section, each shell section and its flanges having connecting flanges along its inner bottom edge and the outer edges of its flanges, the connecting flanges of the opposing shell sections and flanges occurring in juxtaposition and bonded together and establishing said hinge means at the bottom of the container and between the flanges along said finger engaging edges.

3. A structure as set forth in claim 1 including, up-

wardly projecting sealing flanges along each side of the slot opening, one sealing flange having a longitudinally extending laterally inwardly opening groove, the other sealing flange having a longitudinally extending laterally inwardly projecting projection normally press fitted into said groove and yieldingly holding the sides of the slot in closed juxtaposition.

4. A structure as set forth in claim 1 in which said tubular container is established of two opposing shell sections, one flange of each finger engaging means is formed integrally with its related end of its related shell section, each shell section and its flanges having connecting flanges along its inner bottom edge and the outer edges of its flanges, the connecting flanges of the opposing shell sections and flanges occurring in juxtaposition and bonded together and establishing said hinge means at the bottom of the container and between the flanges along said finger engaging edges, upwardly projecting sealing flanges along each side of the slot opening, one sealing flange having a longitudinally extending laterally inwardly opening groove, the other sealing flange having a longitudinally extending laterally inwardly projecting projection normally press fitted into said groove and yieldingly holding the sides of the slot in closed juxtaposition.

5. A structure as set forth in claim 1 wherein the container has end walls at the opposite ends, said flanges of the finger engaging means being joined with and projecting outwardly from their related end walls, said slot opening extending down said end walls.

6. A structure as set forth in claim 1 in which said tubular container is established of two opposing shell sections each having a flat vertical outer wall, a flat laterally inwardly projecting top wall with an inner edge, and a flat laterally inwardly projecting bottom wall with edges, said flanges of the finger engaging means extending between and joined with the three adjacent ends of the top, bottom and side walls of their related sections and defining end walls for the container.

7. A structure as set forth in claim 1 in which said tubular container is established of two opposing shell sections each having a flat vertical outer wall, a flat laterally inwardly projecting top wall with an inner edge, and a flat laterally inwardly projecting bottom wall with an inner edge, said flanges of the finger engaging means extending between and joined with the three adjacent ends of the top, bottom and side walls of their related sections and defining end walls for the container, this hinge means along the bottom side of the container being

established by bonded together connecting flanges on the inner edges of the bottom walls of the sections.

8. A structure as set forth in claim 1 in which said tubular container is established of two opposing shell sections each having a flat vertical outer wall, a flat laterally inwardly projecting top wall with an inner edge, and a flat laterally inwardly projecting bottom wall with an inner edge, said flanges of the finger engaging means extending between and joined with the three adjacent ends of the top, bottom and side walls of their related sections and defining end walls for the container, this hinge means along the bottom side of the container being established by bonded together connecting flanges on the inner edges of the bottom walls of the section, said finger engaging edges defined by bonded together connecting flanges on the converging outer edges of the related flanges.

9. A structure as set forth in claim 1 in which said tubular container is established of two opposing shell sections each having a flat vertical outer wall, a flat laterally inwardly projecting top wall with an inner edge, and a flat laterally inwardly projecting bottom wall with an inner edge, said flanges of the finger engaging means extending between and joined with the three adjacent ends of the top, bottom and side walls of their related sections and defining end walls for the container, this hinge means along the bottom side of the container being established by bonded together connecting flanges on the inner edges of the bottom walls of the section, said finger engaging edges defined by bonded together connecting flanges on the converging outer edges of the related flanges, and sealing means along said slot opening including an upwardly projecting sealing flange along the inner edge of the top wall of one section, and having a longitudinally extending laterally inwardly opening groove and an upwardly projecting sealing flange along the inner edge of the top wall of the other section and having a longitudinally extending laterally inwardly projecting projection normally yieldingly releasably engaged in the groove.

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