

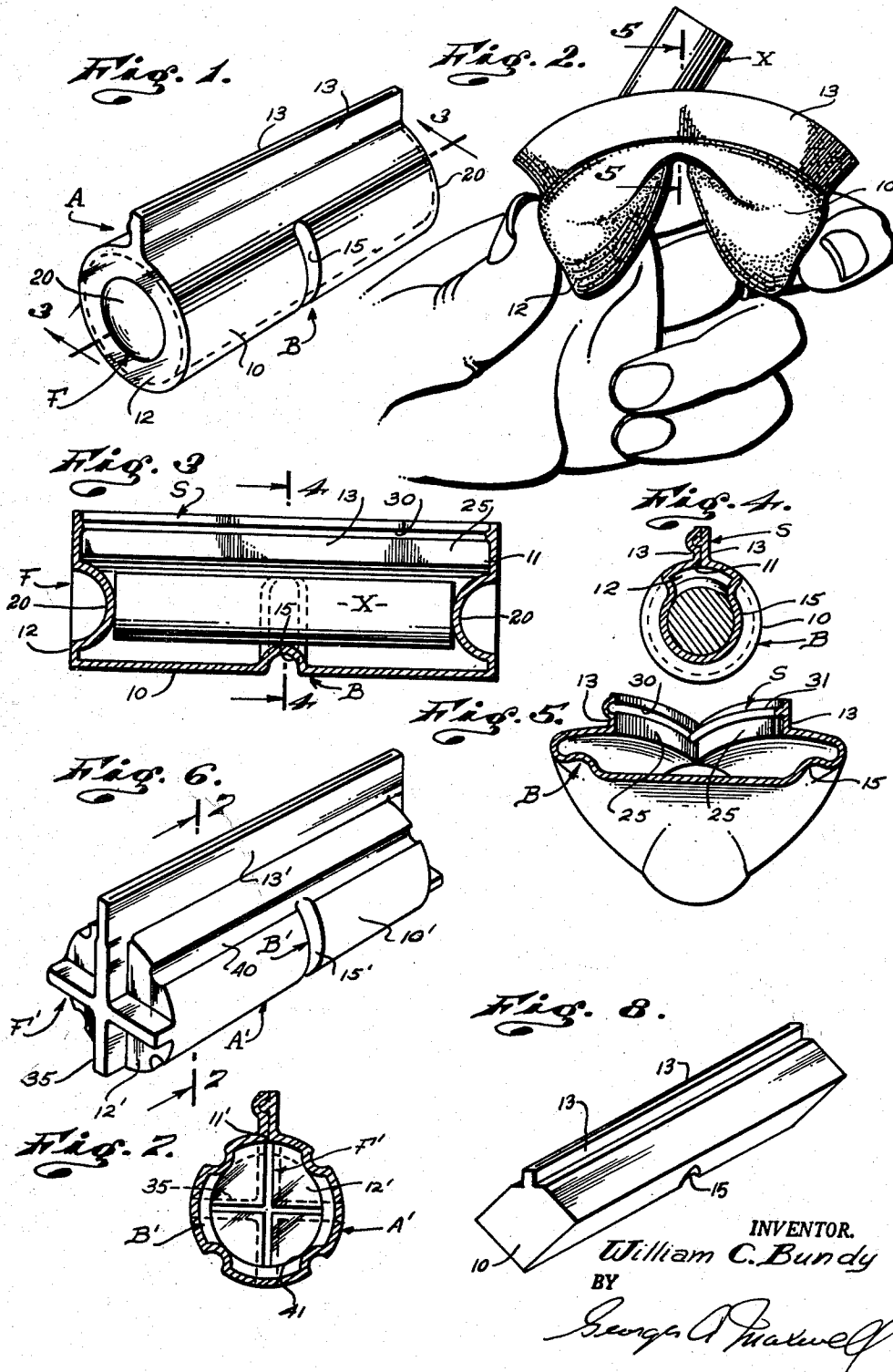
April 6, 1962

W. C. BUNDY
CONTAINER

3,176,743

Filed May 7, 1962

2 Sheets-Sheet 1



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April 6, 1965

W. C. BUNDY
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3,176,743

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2 Sheets-Sheet 2

Fig. 9.

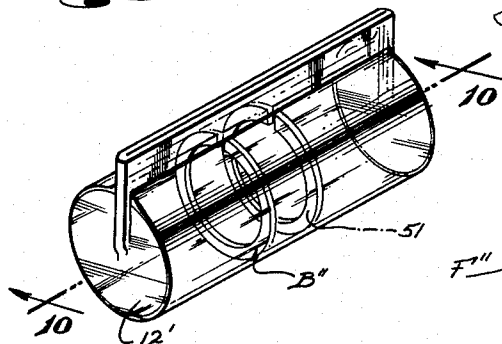


Fig. 11.

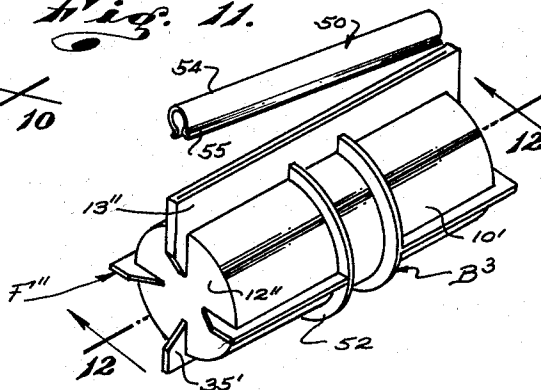


Fig. 10.

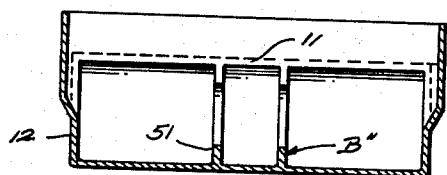


Fig. 12.

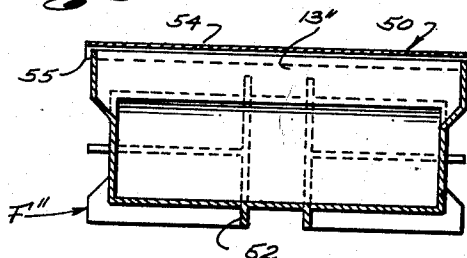


Fig. 13.

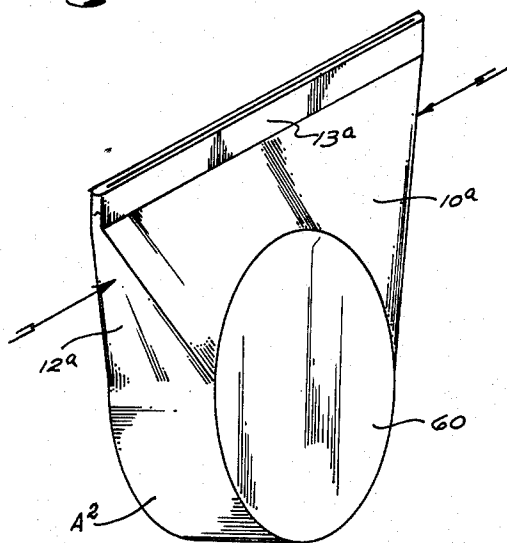
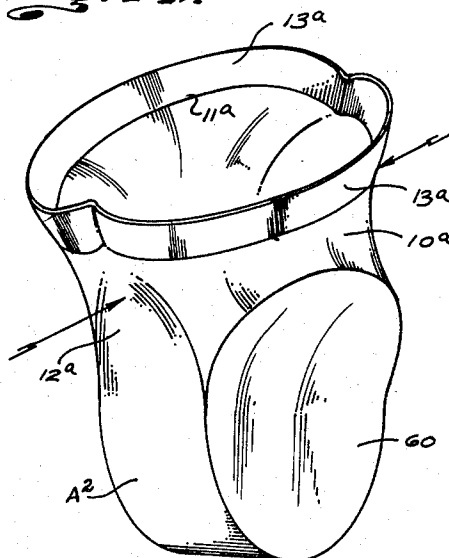


Fig. 14.



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3,176,743 CONTAINER

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This invention relates to a container and is more particularly concerned with a flexible, unitary cocoon or capsule type container for machine parts, tools, im-

plements, medicines, and the like. Throughout industry, there are many small products or items which must be carefully handled and packaged so as to prevent them from being damaged. Often-

times care must be taken not to dent, nick or scratch an item, while at other times they must be kept dust and/or moisture free. At other times they must be maintained in an oil bath, or the like.

The above has resulted in the development and production of many special, complicated and costly package constructions which are difficult to use and which are normally such that they can only be used once.

Further, ordinary or conventional packages include pasteboard or plastic boxes having flaps, lids, tabs, tapes, wrappers and various other elements and/or parts which require the person opening them to use both hands, often in such a manner that a great risk of dropping the package and/or its contents, exists.

In many shops where costly, precision machine parts are manufactured, great loss is experienced as a result of the lack of a suitable, simple, inexpensive and easy to manipulate package or container construction in which parts can be placed after each step or operation to which they are subjected during their manufacture.

An object of the present invention is to provide a novel cocoon or capsule-type container formed of a soft, pliable, resilient, shock-absorbing elastic or plastic material.

Another object of the present invention is to provide a package of the character referred to which is self-closing and is such that it can be easily and conveniently manipulated to open and close with one hand.

Yet another object of my invention is to provide a novel elongate package of the character referred to having a longitudinally disposed access opening along one side thereof, which opening is normally closed.

It is another object of the present invention to provide a container of the character referred to which is such that when the container is compressed between its ends, as by the exertion of pressure on the ends of the container by one's fingers, the container bends towards the side at which the opening occurs and spreads laterally, so as to open.

Still another object of my invention is to provide a container of the character referred to wherein a portion, or portions, of the package or container is provided with a break or bend-inducing means to cause bending, spreading and opening of the package in the manner set forth above.

It is another object of this invention to provide a structure of the character referred to wherein the portion of the package opposite the opening serves as a means to eject or partially eject an article in the container outwardly through the opening, for easy access.

It is another object of this invention to provide a structure of the character referred to having dust and/or water-tight sealing means at the opening therein.

Another object of my invention is to provide a bead and groove type sealing means in which a suitable sealing material or compound can be employed to establish a hermetic and/or tamper-proof seal.

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Another object of my invention is to provide sealing means including a pair of flat, flexible tabs or flanges having smooth opposing surfaces which establish lap-type sealing engagement when pressed together.

Still another object of my invention is to provide a package of the character referred to including a clip engageable with said tabs or flanges to hold them in sealing engagement.

Another object of this invention is to provide an elongate package or container of the character referred to which is such that it can be made in various lengths and of any desired cross-sectional configuration.

It is a further object of this invention to provide a package of the character referred to wherein inwardly extending, soft, resilient, shock-absorbing, article-supporting portions or projections are provided at the ends and/or sides of the package, and/or outwardly extending soft, resilient, shock-absorbing projections and/or portions are provided at the ends and/or sides of the package.

A further object of my invention is to provide a structure of the character referred to having finger-engaging means at the ends of the structure to facilitate engaging the structure at its ends and to prevent slipping of the structure from such engagement.

An object of the present invention is to provide a package or container of the character referred to that can be easily, conveniently and economically manufactured of plastic materials such as polyethylene, poly vinyl chloride, rubber, or the like.

A further object of my invention is to provide a container of the character referred to formed of a material which is tough, durable, non-toxic, water and acid-resistant, and which can be made either transparent or opaque, as circumstances require.

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 my new container;

FIG. 2 is a perspective view of my container showing it engaged in a person's hand and actuated to an open position;

FIG. 3 is a longitudinal sectional 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. 3;

FIG. 5 is a sectional view taken as indicated by line 5-5 on FIG. 2;

FIG. 6 is a perspective view of another form of my invention;

FIG. 7 is a sectional view taken as indicated by line 7-7 on FIG. 6;

FIG. 8 is a perspective view of a third form of my invention;

FIG. 9 is a modified form of my invention;

FIG. 10 is a sectional view taken as indicated by line 10-10 on FIG. 9;

FIG. 11 is a perspective view of another form of my invention;

FIG. 12 is a sectional view taken as indicated by line 12-12 on FIG. 11;

FIG. 13 is a perspective view of yet another form of the invention; and

FIG. 14 is a view of the structure shown in FIG. 13, in an open position.

The package or container A provided by the present invention is an elongate, semi-rigid capsule or cocoon type receptacle formed of a suitable flexible plastic material such as polyethylene or poly vinyl chloride.

In the form of the invention illustrated in FIGS. 1 through 5 of the drawings, the container A is shown as including a cylindrical side wall 10 having a longitudinal slit 11, which slit is coextensive with the longitudinal extent of the structure, end walls 12, a pair of flat, radially-outwardly projecting flanges 13 each extending along an edge of the slit 11 in the side wall 10 and integrally joined or connected at their ends, sealing means S on the flanges and break means B formed in the body, between the ends thereof, to cause the container to break or bend towards the side of the container in which the slit 11 is established and along a line extending transverse the longitudinal axis of the container, thereby causing the portion of the side wall opposite the slit 11 to break and/or arch towards the slit, urging an article X within the container in the direction of and out through the slit, causing the portion of the side walls 10 intermediate the slit and the said portion opposite the slit to belly laterally outwardly and thereby cause the sides of the slit to bow outwardly away from each other, so as to freely receive the item X.

In the form of the invention now under consideration, the break means B includes a radially-inwardly projecting, outwardly opening groove 15 extending circumferentially of the side wall 10, between 90° and 270°, and opposite the slit 11.

In practice, the break means B can be established by the flanges 13. When the flanges 13 serve as the break means, they are made heavy and rigid and of sufficient radial extent so as to resist bending along planes radial of the container, yet freely bendable at right angles to planes radial of the container. When the flanges 13 are thus formed and the container is pressed or collapsed from and between its opposite ends, the flanges 13 resist bending radially, yet yield and bend freely at right angles thereto. As a result of the above, the portion of the container opposite the flanges yields and bends or breaks radially inwardly, causing the flanges to bow away from each other and the slit 11 in the container to open. The above also causes that portion of the side wall 10 opposite the slit 11 to urge the item X in the container, as clearly illustrated in FIG. 2 of the drawings.

In practice, if the flanges 13 are employed to establish the break means B, the container will normally break intermediate its ends, whereas, when the break means B is established in the side wall of the container opposite the slit 11 therein, the break line can be controlled so that the container will break or bend at a predetermined point between its ends, other than intermediate its ends.

Further, by providing the break means in the side wall 10 rather than in the flanges, the full thickness of the flanges and the side walls need not be made so heavy, with a resulting saving of considerable material and expense.

In the preferred carrying out of the invention, the end walls are provided with finger-engaging means F to facilitate holding the container between one's fingers and to prevent the container from slipping out of engagement from between one's fingers.

In the first form of the invention shown in FIGS. 1 through 4 of the drawings, the finger-engaging means F includes a concave finger-receiving depression 20, in each end wall 12.

In addition to facilitating engaging the container, the depressions 20 in the end walls 12 project axially inwardly into the container, establishing convex shock absorbers or bumpers and serve to protect the item within the container from being damaged when the container is shifted and bumped axially.

While I have shown the means F including concave depressions, it is to be understood that the particular configuration and the depth or longitudinal extent thereof can be varied, as circumstances require.

The sealing means S that I provide includes, first, the establishment of smooth opposing surfaces 25 on the flanges 13, which surfaces establish lapped-type sealing

engagement with each other, when pressed together. The effectiveness of this seal is greatly controlled by the particular material which is used to establish the container.

In practice, a suitable clip 50 can be releasably engaged with the flanges to hold them in sealed engagement with each other, as clearly illustrated in FIGS. 11 and 12 of the drawings.

The sealing means S, in addition to or instead of the lapped-type seal, includes an elongate groove 30 established in one flange 13, opposing the other flanges and coextensive therewith, and an elongate tongue 31 on the other flange 13, coextensive therewith and engageable with the groove 30.

The groove 30, as shown in the drawings, can be semi-circular in cross-section and of greater than 180° in circumferential extent, and the tongue 31 can be established with, or in the form of, a semi-circular bead. With this relationship of parts, it will be apparent that the bead-like tongue 31 can be snapped into and out of engagement in the groove 30 and establishes sealing engagement therein.

In practice, the configuration of the groove and tongue can vary widely without affecting the novelty of the present invention.

The tongue and groove seal is such that when the container is compressed or collapsed between its ends and the flanges are caused to separate, the tongue and groove separate, without the necessity of prying or otherwise urging them apart, and are such that they can be easily and conveniently reengaged with each other by simply drawing the flanges between one's fingers.

When establishing the container A, the flanges 11 initially project beyond the ends of the container and the tongues and grooves are coextensive therewith. The tongues and grooves are then engaged with each other and the extended end portions of the flanges are then cut off and the new or finished ends of the flanges are fused and sealed together by a suitable heat sealing operation.

In so establishing the flanges and the sealing means, it will be apparent that a complete seal is established between the flanges and that the tongues and grooves never become completely disengaged, thereby making closing and sealing of the construction extremely easy and accurate.

In the form of the invention illustrated in FIGS. 6 and 7 of the drawings, the finger-engaging means F' at the ends of the container are established by pairs of cross or intersecting longitudinally outwardly projecting rib-like projections 35 on the end walls 12'. In addition to establishing means on which one's fingers can grip, the projection 35 also serve as shock absorbers or bumpers and prevent damage to the item in the container as a result of shifting of the construction axially into engagement with a foreign object.

In the case illustrated, the end portions of the flanges 13' are in the nature of continuations of one of the projections 35. With this relationship of parts, the slit 11' is not closed at the end walls of the container, but opens between the end portions of the flanges 13', that project beyond the end walls and extend radially inwardly across said end walls. As a result of this relationship of parts, the container is free to open wider when collapsed axially, thereby providing freer and easier access to the interior thereof.

Still further, in the first form of the invention the container must ordinarily be slightly longer than the item engaged therein, so as to allow at least one end of the container to shift clear of the item when the container is opened. This requires that the item be free to shift axially in the container or that the depressions 20 establishing the means F extend axially a sufficient extent to engage the ends of the item and hold it against axial movement, as clearly illustrated in the drawings and as pointed out above. However, in the second form of the invention, the container per se can be equal, or substan-

tially equal, in longitudinal extent with the item, and so that the end walls 12' engage and support the ends of the item.

The above relationship of parts can be carried further and makes possible the establishment of containers other than cylindrical, to cooperatively receive special parts and which need not be completely collapsed or broken to open the slit. Such a modification is shown in FIGS. 13 and 14 and will hereinafter be described.

In the second form of the invention now under consideration, the side walls 10' are provided with a plurality of circumferentially-spaced, radially outwardly opening longitudinal grooves 40 establishing radially inwardly projecting shock absorbing and item-supporting ribs 41. Certain of the ribs 41 are shown intersecting the arcuate groove 15' establishing the break means B'.

It will be apparent that the ribs 41 serve to support the item within the container clear of the side wall 10 thereof and thereby protect it against any damage which might otherwise result from knocking the side of the container against a foreign object.

FIG. 8 is a perspective view of a third form of container that I provide, wherein the side wall 10'' is polygonal in cross section. In all other respects, this construction is the same as the first and second forms of the invention, that is, it can include the polished surfaces and/or tongue and groove type sealing means, longitudinal ribs in its side wall and either outwardly opening depressions, or outwardly extending projections on the end walls, as circumstances require or as desired.

In the form of the invention illustrated in FIGS. 9 and 10 of the drawings, the break means B'' is established by a pair of longitudinally spaced, radially inwardly projecting reinforcing flanges 51. The flanges 51 reinforce the side wall to resist radial inward collapsing thereof. As a result, that portion of the side wall between the flanges 51 is first to yield and break, thereby assuring breaking of the container, as desired.

In practice, a plurality of flanges 51 can be provided, as desired, or as circumstances require.

The flanges 51 also serve to yieldingly support a stem in the container.

In the form of the invention illustrated in FIGS. 11 and 12 of the drawings, the break mean B³ is established by longitudinally spaced radially outwardly projecting reinforcing flanges 52. This is simply a reversal of the means B'' above described.

In this last form of the invention, the finger-engaging means F'' is established by radially extending flanges 35' about the outer peripheral portions of the end walls and having longitudinally inwardly inclined inner ends terminating at points spaced from the center of the end walls to define what may be called finger-tip engaging blocks.

The ribs 35' can, as illustrated, continue around the ends of the container and extend longitudinally thereof to join and supplement the reinforcing flanges 52.

The form of the invention now under consideration is shown as including the clip 50, above referred to, which clip serves to maintain the flanges 13'' of the construction in sealing engagement. The clip is shown as an elongate, substantially U-shaped member having a round top 54 to bridge the flanges 13'' and laterally spaced legs 55 to yieldingly engage the outer surfaces of the flanges and urge them together.

The clip can be established of metal or a suitable plastic material.

In practice, and as illustrated in FIGS. 13 and 14 of the drawings, the container A² can be provided with an enlargement 60 intermediate its ends, opposite the slit 11^a therein, to receive an article of particular or unusual configuration.

In such a construction, the container breaks along longitudinal lines at the opposite sides thereof, camming out, or ejection of the article, as in the previously considered forms of the invention.

The enlargement 60 is in the nature of a pocket in the lower half of the container, in which a portion of the article rests, and is necessarily of less longitudinal extent than the slit 11^a and flanges 13^a.

The side walls 10^a of the container extending upwardly from the pocket converge upwardly to establish the slit opening, and the ends 12^a are longitudinally outwardly and upwardly inclined so that the perimeter extent of the slit 11^a and of the flanges 13^a is greater than the major extent about the article, and so that when the container is compressed and collapsed between its ends, as illustrated in FIG. 14, and the side walls and flanges are bellied laterally outwardly, the opening defined by the slit and flanges is such that it will freely receive the article.

The flanges 13^a can include one of the sealing means above referred to.

If necessary or desired, a breaking means B³ can be provided to assure proper breaking of the side walls when the container is urged open. Such means could consist of a longitudinal reinforcing rib, or the like, along each side wall.

Having described only typical preferred forms and applications of my invention, I do not wish to be limited or restricted to the specific details herein set forth, but wish to reserve to myself any modifications or variations that may appear to those skilled in the art and falling within the scope of the following claims:

Having described my invention, I claim:

1. An elongate unitary container of flexible material having a tubular side wall and opposed end walls defining an inner closed chamber and formed with a longitudinal slit therealong, said container having outwardly extending flanges formed along both edges of said slit and joined together at the ends thereof to form a normally closed, lapped sealing mouth into said chamber, said flanges extending longitudinally beyond the length of said container and down the ends of said container to the center of said ends whereby to form opposed finger-engaging press points, and centrally spaced circumferential rib means formed on said side wall, said rib means serving to normally hold said flanges tightly together and as break means adapted to make the portion of the side wall opposite the slit bend on a line extending transverse the axis of and towards the slit to open said flanges apart at said slit when pressure is applied to said opposed press points.

2. An elongate unitary container of flexible material having a side wall and opposed end walls defining an inner closed chamber and formed with a longitudinal slit therealong, said container having outwardly extending flanges formed along both edges of said slit and joined together at the ends thereof to form a normally closed, lapped sealing mouth into said chamber, said flanges extending longitudinally beyond the length of said container and down the ends of said container to the center of said ends whereby to form opposed finger-engaging press points, and centrally spaced circumferential rib means formed on said side wall, said rib means serving to normally hold said flanges tightly together and as break means adapted to make the portion of the side wall opposite the slit bend on a line extending transverse the axis of and towards the slit to open said flanges apart at said slit when pressure is applied to said opposed press points.

3. An elongate unitary container of flexible material having a tubular side wall and opposed end walls defining an inner closed chamber and formed with a longitudinal slit therealong, said container having outwardly extending flanges formed along both edges of said slit and joined together at the ends thereof to form a normally closed, lapped sealing mouth into said chamber, said flanges extending longitudinally beyond the length of said container and down the ends of said container to the center of said ends whereby to form opposed finger-

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engaging press points, the bend resistance of the flanges on a line transverse of the axis of the slit being greater than that of at least a portion of said tubular side wall opposite said slit, whereby said flanges spread apart along said slit when opposed pressure is applied to said press points to transmit force through the flange end extensions to the centers of said ends to cause said portion of said end wall to bow toward said slit to eject an article from said container.

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