

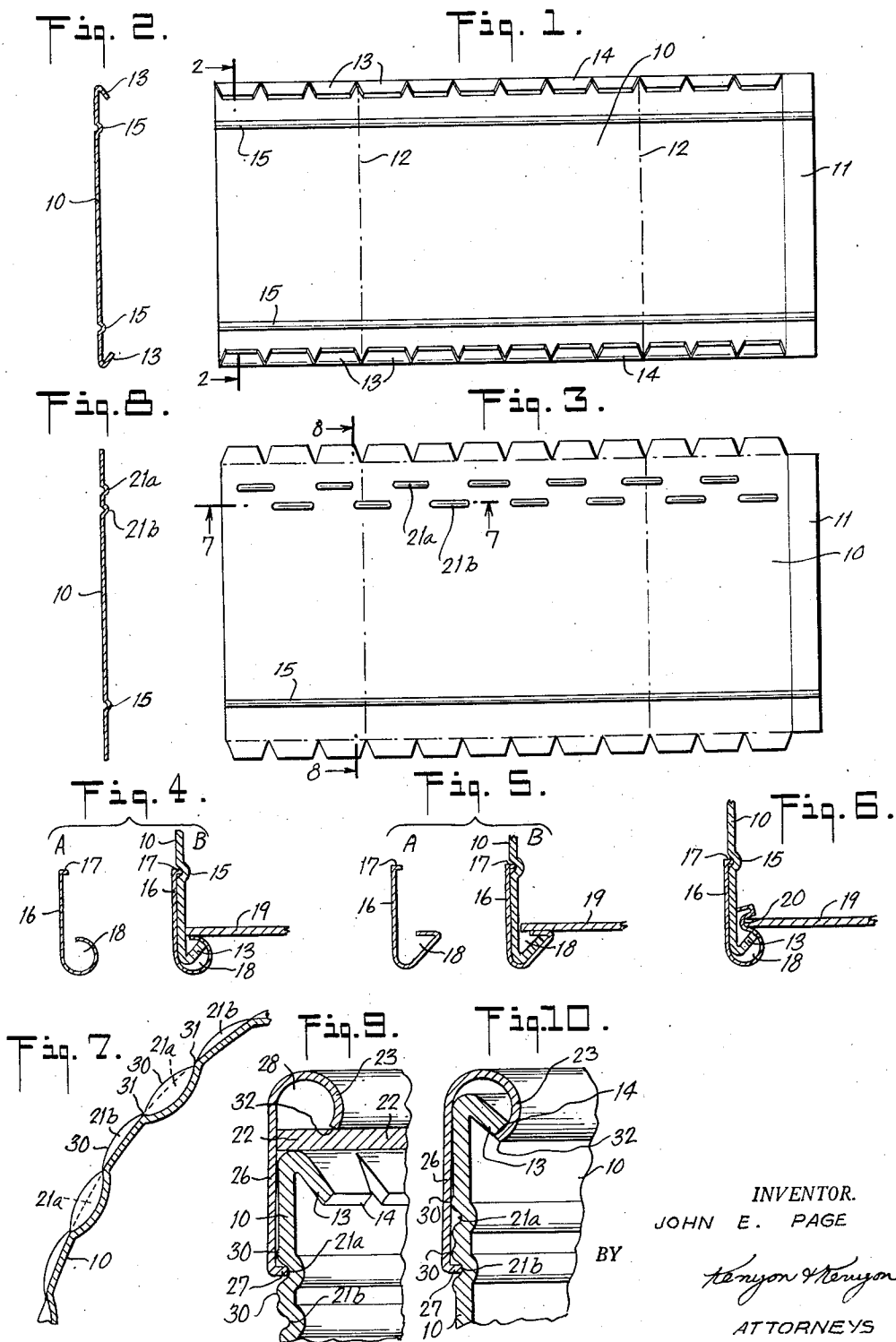
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CONTAINER CONSTRUCTION

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1

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CONTAINER CONSTRUCTION

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This invention relates to containers used for packaging commodities and more particularly to such containers specifically adapted for the packaging of comestibles such as ice cream.

A container of this type is described and illustrated in Australian patent specification No. 149,410 wherein is shown a construction enabling the container components to be transported or stored in a knocked down or substantially flat condition ready for erection at the site for use as a container.

By reference to the said specification it will be seen that the container therein described is provided with a sheet metal top rim which has an inwardly extending annular flange that engages with a top or cover. It has been found that after the top or cover of a loaded container has been removed the said inwardly extending annular flange edge presents an injury hazard to the hands of a person removing goods from the container.

To minimize this hazard it is customary for the top rim to be forced downwardly on the container body immediately after the top or cover is removed. This procedure causes the upper edge of the container body to enter the said annular flange thereby reducing the free overhang of the said flange edge and provides some measure of protection.

Also, in the reference container the top and bottom shape-forming rims are retained in position solely by each rim having an inwardly extending annular lip in engagement with a circumferential groove provided at each end of the container body and spaced a short distance from the respective edges thereof.

Such rims are liable to displacement if the assembled containers are carelessly handled and on such displacement the container may collapse, or the goods therein may be exposed to damage.

The principal object of the present invention is to provide a container construction by means of which these disadvantages are substantially eliminated.

In a general aspect the present invention is for a container adapted for storage or transport in a collapsed condition and of the type having a body of flexible tubular material with groove means at one or each marginal end of its outer surface, including shape-forming rims at least one of which has an inwardly turned annular flange adapted to engage the groove means at the end of the body to which the rim is fitted, and a pair of end closure members, the said container being characterized in that the body member is provided at each end with a plurality of inwardly projecting tongues, and the said rims are each provided with means such as an inwardly projecting curved flange adapted to engage and interlock with the tongues at the ends of the body to which they are fitted. Thus, for example, when the rim at the upper end of the container is first applied, it serves to press the top closure disc against the top of the tongues and thus to secure this disc in place during shipment of the ice-cream and, when the top disc has been torn out to expose the ice-cream, this rim may then be pushed down so that its

2

curved flange passes over the ends of the tongues, which then snap up into locking position, and thus prevent removal of the rim from the body member during the time the ice-cream is being dispensed.

Among the advantages of the invention are that the rim stays securely in place while the ice-cream is being dispensed, thus preventing inward collapse of the container walls at this time, that the rim is shaped so no sharp edges are exposed to catch the hand of a person dispensing ice-cream, and that identically-shaped rims will serve both as top and bottom rims, thereby making it unnecessary for the ice-cream manufacturer to stock two types of rim as heretofore.

The invention will be more clearly understood by reference to the following description and accompanying drawings in which:

Fig. 1 shows a developed view of the container body member.

Fig. 2 shows a cross-section of Fig. 1 taken at 2—2.

Fig. 3 is a developed view of the container body member in a modified form.

Fig. 4 is a cross-section of a shape-forming rim with a fragmentary view of an engaged end of the body member and closure member.

Fig. 5 is a cross-section of a modification of Fig. 4.

Fig. 6 is a cross-section of a second modification of Fig. 4, showing the contour of the annular cavity wall incorporating an annular groove to receive a closure member.

Fig. 7 is a partial horizontal section in the plane 7—7 of Fig. 3, where the container body of Fig. 3 has been formed into tubular shape.

Fig. 8 is a cross-section of Fig. 3 in the plane 8—8 of Fig. 3.

Figs. 9 and 10 are cross-sections through the rim and upper edge of the container made with the modified body of Fig. 3 and the rim of Fig. 4, showing the two positions which rim 16 may occupy in, respectively, the presence and the absence of top closure disc 22.

In the drawings like parts are given like identification numerals.

The body member 10 shown in development in Fig. 1 is made of a flexible material and is provided with a narrow strip 11 which overlaps the opposite end of the member where it is adhesively or otherwise affixed to form the member into a tubular shape. The member may have a plurality of spaced, parallel, transversely disposed scored lines 12 to assist and control the flexibility of the material so that when the member is collapsed to a flat condition for storage or transport, the surfaces will not become unintentionally creased or deformed.

Each end of the body member is notched to provide a number of tongues 13 which are turned inwardly to form an annular series of ledges 14.

Spaced at a short distance from each end of the body member, in the form shown in Fig. 1, the outer surface has circumferential grooves 15 scored therein as shown in Fig. 2 for the purpose presently to be described.

The shape-forming rims, which also provide a reinforcement for each end of the body member and a closure retainer when the container is in the erected condition, preferably comprise a pair of rims of light gauge sheet metal. Each rim 16 has one edge turned inwardly to form an annular flange 17 and in one construction has its other marginal edge shaped inwardly to form an annular cavity 18 as sectionally shown in Fig. 4A, or in the modified shape shown sectionally in Fig. 5A.

In Figs. 4B and 5B the respective sections are shown with a fragmentary section of the container body member 10 and part of an end closure member 19.

Assembly of the container components using the body shown in Fig. 1 is carried out by entering one end of the

body member 10 into one of the rims 16 so that the in-turned tongues 13 pass into the annular cavity 18 and the adjacent groove 15 engages the annular inturned flange 17. When the tongues 13 are being entered into the cavity 18 of the rim each tongue will be stressed to lie in contact with or closely adjacent to the tubular wall of the body member 10, and when the edges 14 of the tongues 13 pass the annular edge of the cavity 18, the stress will be released. The resilience of the material forming the body member 10 will then cause the tongues 13 to spring into the annular cavity 18, the rim thus being securely anchored.

At the same time, the annular flange 17 will enter the circumferential groove 15 and the rim will be secure against unintentional displacement.

A slightly oversize closure member 19 is then entered inside in the body member and circumferentially brought into engagement with the annular inward projection formed by the cavity wall of the rim 16.

The container may now be filled and after filling, a closure member 22 is placed over the open end of the container and a second rim 26 mounted on the corresponding end of the container body to retain the member 22 in position.

A further modification of the rim 16 is shown at Fig. 6, wherein the shaped marginal annular edge of the rim has a sectional contour providing the cavity 18 and also an annular groove 20 adapted to receive the circumferential rim of a closure member 19.

It will be apparent that a container incorporating a rim having the section shown in Fig. 6 may be provided at one end with a rim of alternative section such as is shown in Fig. 4 or Fig. 5, and that the closure member 19 can be inserted in the annular groove 20 after the band, contoured in accordance with Fig. 6, has been secured to the body member.

With the modified container body shown in Fig. 3 the assembly procedure is similar to that described but by the provision of the series of spaced grooves 21a, 21b circumferentially aligned in two rows in staggered parallel relationship at one end of the said body, the said end normally becomes the final closure end. In this instance the closure member 22 is placed over the end of the container and the skirt of a rim of the type shown in Fig. 4 or Fig. 5 is passed over the end of the container body 10 until the flange 27 of the rim 26 engages the outermost series of grooves 21a.

Alternatively, when the type of rim shown in Fig. 6 is used for the purpose mentioned, the flange 17 is engaged with the innermost series of grooves 21b, and the rim 16 is also anchored by the tongues 13 at that end of the body 10. The closure member 19 is then engaged with the annular groove 20 of the rim 16.

It has been found, particularly in connection with the packaging of ice-cream in the container having a body 10 as shown in Fig. 3, that the said body assumes a corrugated shape, as indicated in Fig. 7, on the line of the spaced grooves 21a, 21b, the crowns 30, 30 of each corrugation being circumferentially outward from the body 10 at each groove and the valleys 31, 31 being circumferentially inward at the spaces between the grooves 21a and 21b.

The said crown 30 at each groove 21a and 21b by raising the groove above the plain surface of the container body 10, thus enables the inward flange 27 of the rim 26 to be engaged thereby.

It may now be seen that a filled and sealed container having the constructions herein defined can only be opened by mutilating one or other of the closure members 19 or 22, or alternatively cutting open the body member. The contents are therefore secure against unauthorized removal, contamination or adulteration.

When upper closure member 22 is removed, as by puncturing it with a pointed tool and ripping it out, the upper rim 26 may then be pushed down from its original sealing position shown in Fig. 9 to the position shown in

Fig. 10. In the course of being pushed down the edge 32 of the rounded portion 23 of the rim 26 depresses tongues 13, and thus edge 32 passes below the edges 14 of these tongues. Since tongues 14 possess material resilience, because of the sharp fold which unites them with body 10, the tongues snap inwardly after edge 32 has passed and thus assume the locked position shown in Fig. 10. As a result of this lock, rim 26 is secured in lowered position and prevented from rising again during the time ice-cream, or the like, is being dispensed from container 10. The engagement of flange 27 with lower grooves 21b aids in this locking effect.

The construction of a container in accordance with this invention provides a unit, when erected, of considerable strength and rigidity to which the reinforcement given to the shape forming rims by the body member tongues greatly contributes.

I claim:

1. A container adapted for storage of goods comprising a flexible tubular body having at one end thereof a plurality of resilient tongues projecting inwardly to form an annular ledge within the body, said body containing a circumferential groove spaced from the end, and a rim member receivable on the end of said body having one end turned inwardly to provide an annular flange engageable with the circumferential groove of the tubular body and the other end formed into an open loop having the unattached edge thereof turned inwardly, thereby providing an annular cavity for positioning of the ledge therein, the rim member and tubular body being so arranged and constructed that the rim when forced over the end of the body causes the tongues to flex and pass through the loop opening thereby becoming locked within the loop and also the annular flange to engage the circumferential groove of the tubular body, and in the aforementioned locked position the loop of the rim protects the operator against injury when removing goods from the container.

2. A container adapted for storage of goods comprising a flexible cylindrical body having at each end thereof a plurality of resilient tongues projecting inwardly to form an annular ledge therein, said cylindrical body containing a circumferential groove spaced from each end thereof, one end of said cylindrical body containing a second circumferential groove spaced equidistantly from the first mentioned one, a closure member adapted for each end of the cylindrical body, a circular rim receivable on each end of the cylindrical body, each rim having one end turned inwardly to form an annular flange engageable with the circumferential grooves and the other end formed into an open loop for locking the resilient tongues therein, the loop of each rim having the unattached edge turned inwardly, the end containing a single circumferential groove being so arranged and constructed that forcing the rim thereover causes the tongues to flex and pass through the loop opening of the rim thereby becoming locked within the loop and also the annular flange of the rim to engage the groove, the closure member being supported by the rim within the end of the cylindrical body containing a single groove, the other rim being associated with the end of the cylinder containing two grooves such that when the rim flange engages the groove closer to the cylinder end the closure member is held between the rim loop and the end of the cylinder and when the closure member is removed the rim flange is engageable with the groove farther from the cylinder and thereby locking the tongues within the rim loop as aforesaid, and in the aforesaid locked position the rim loop protects an operator against injury when removing goods from the container.

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