Oct. 31, 1961 E. L. ARNESON 3,006,522

COLLAPSIBLE CONTAINER

Filed March 11, 1957 8 Sheets-Sheet 1

Fig. 1

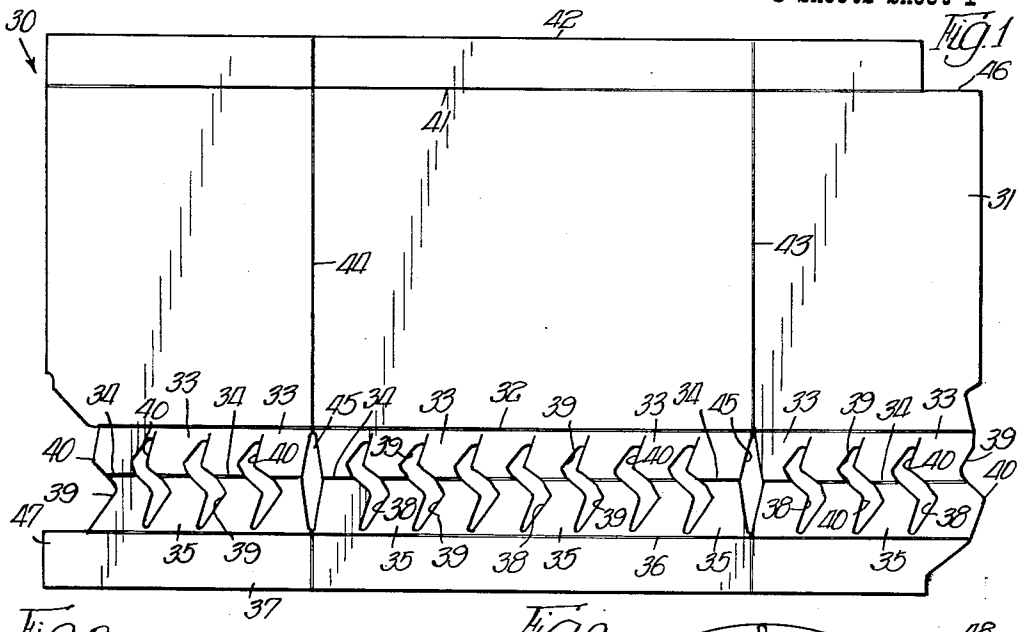



Fig. 2

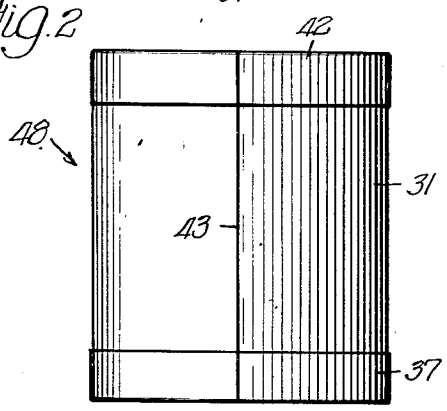



Fig. 9

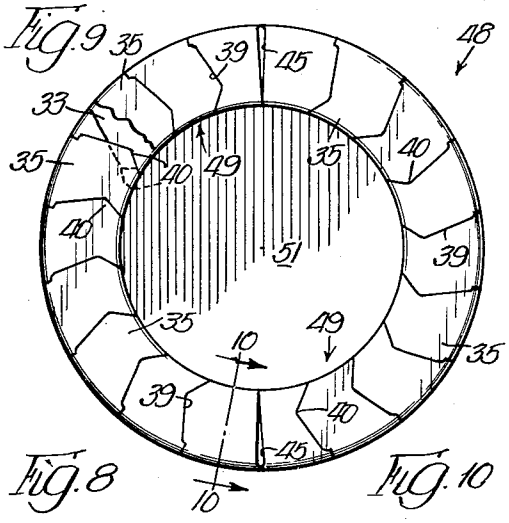



Fig. 7

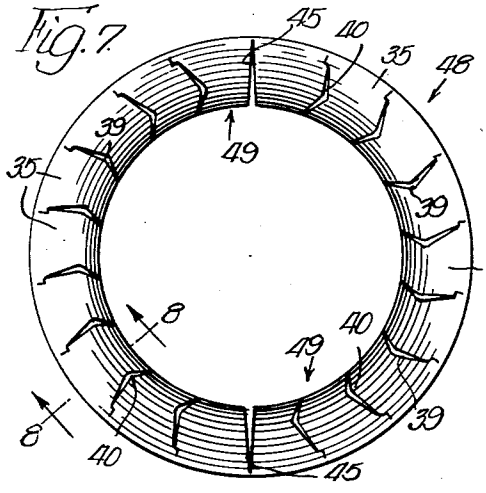



Fig. 8

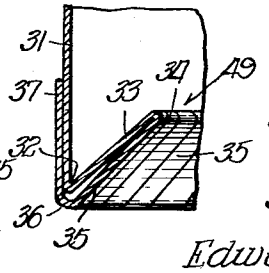
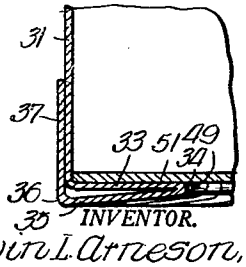



Fig. 10




INVENTOR.
Edwin L. Arneson,
BY
Cromwell, Greist & Warden
Attys.

Oct. 31, 1961 E. L. ARNESON 3,006,522

COLLAPSIBLE CONTAINER

Filed March 11, 1957 8 Sheets-Sheet 2

Fig. 3

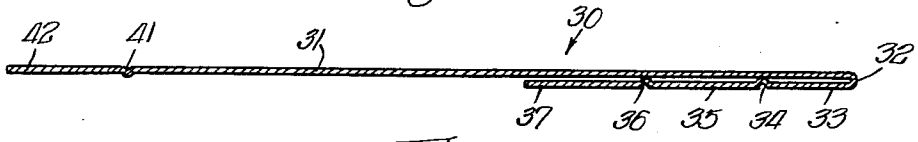



Fig. 4

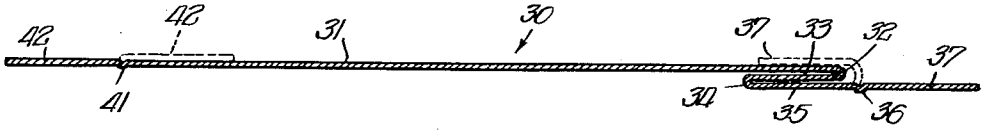



Fig. 5

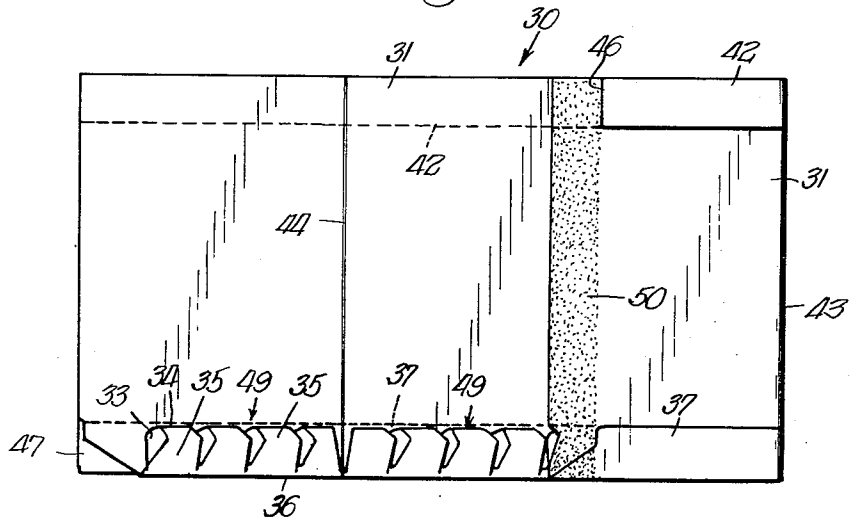
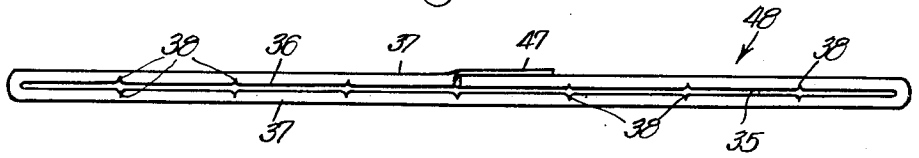



Fig. 6




INVENTOR.
Edwin L. Arneson,
BY
Cromwell, Greist & Warden
attys.

Oct. 31, 1961 E. L. ARNESON 3,006,522

COLLAPSIBLE CONTAINER

Filed March 11, 1957 8 Sheets-Sheet 3

Fig. 11

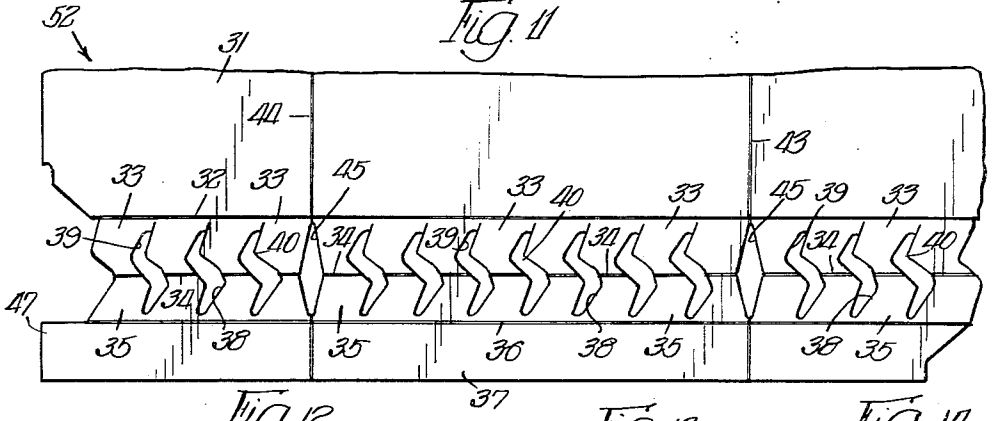



Fig. 12

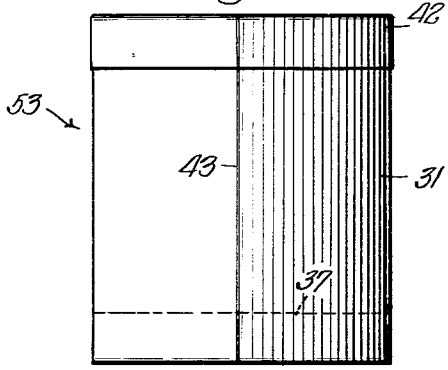



Fig. 13

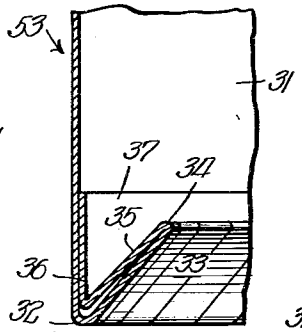



Fig. 14

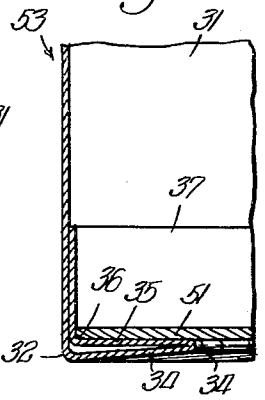



Fig. 15

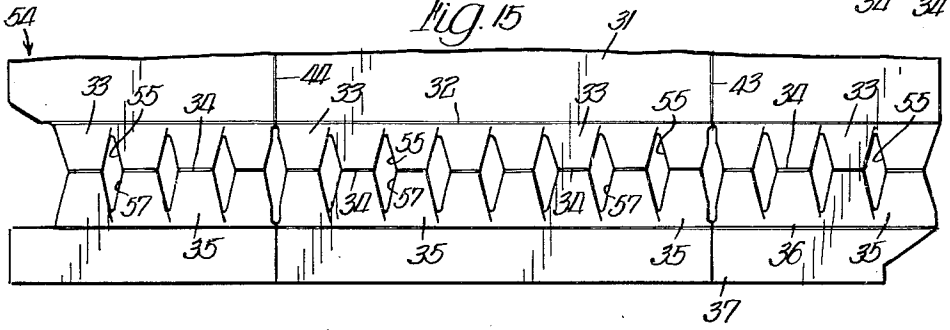
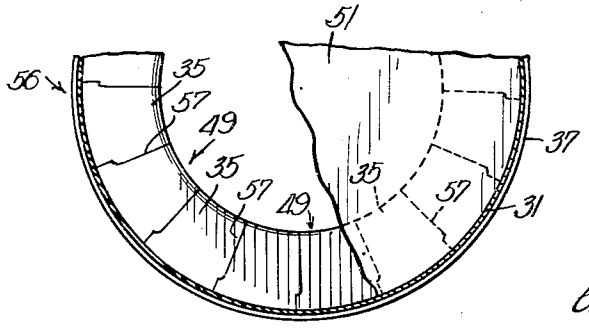



Fig. 16




INVENTOR.
Edwin L. Arneson,
BY
Cromwell, Greist & Warden
Attys

Oct. 31, 1961 E. L. ARNESON 3,006,522

COLLAPSIBLE CONTAINER

Filed March 11, 1957 8 Sheets-Sheet 4

Fig. 17.

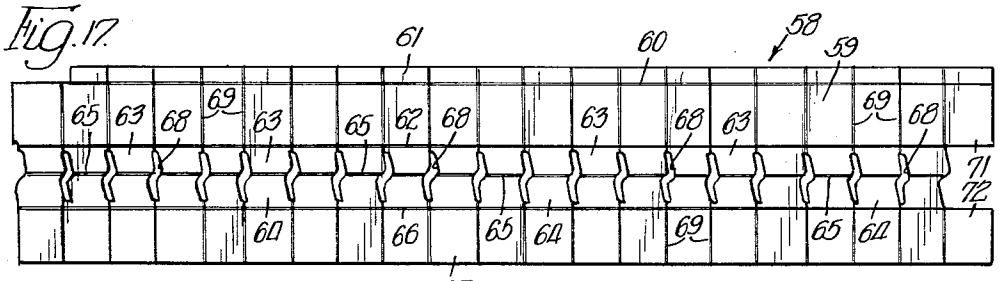



Fig. 18.

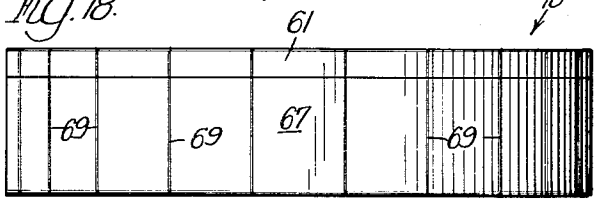



Fig. 19.

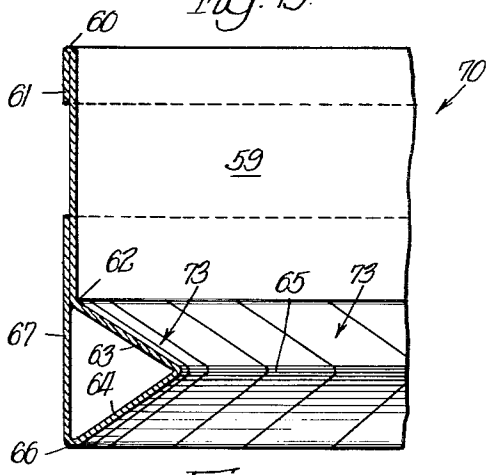



Fig. 20.

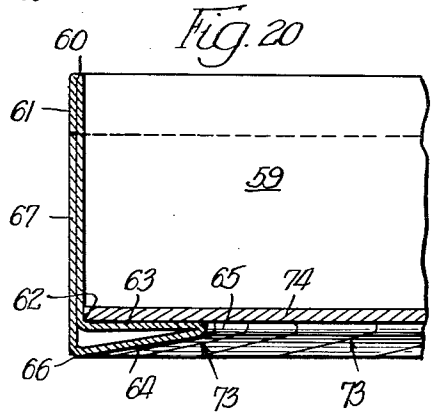
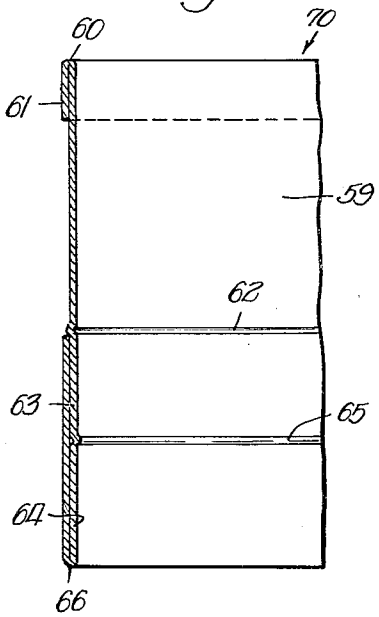



Fig. 21.




INVENTOR.
Edwin L. Arneson,
BY
Cromwell, Greist & Warden
Attys

Oct. 31, 1961 E. L. ARNESON 3,006,522

COLLAPSIBLE CONTAINER

Filed March 11, 1957 8 Sheets-Sheet 5

Fig. 22

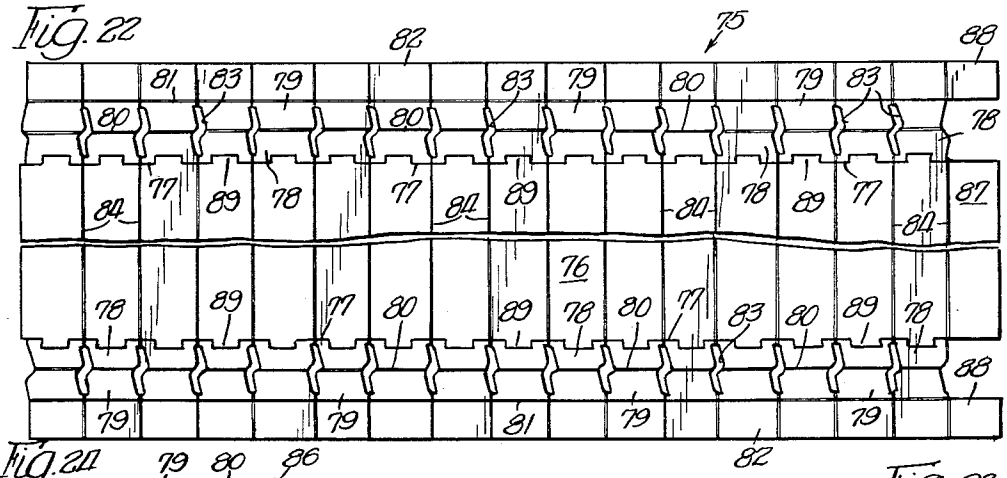



Fig. 24

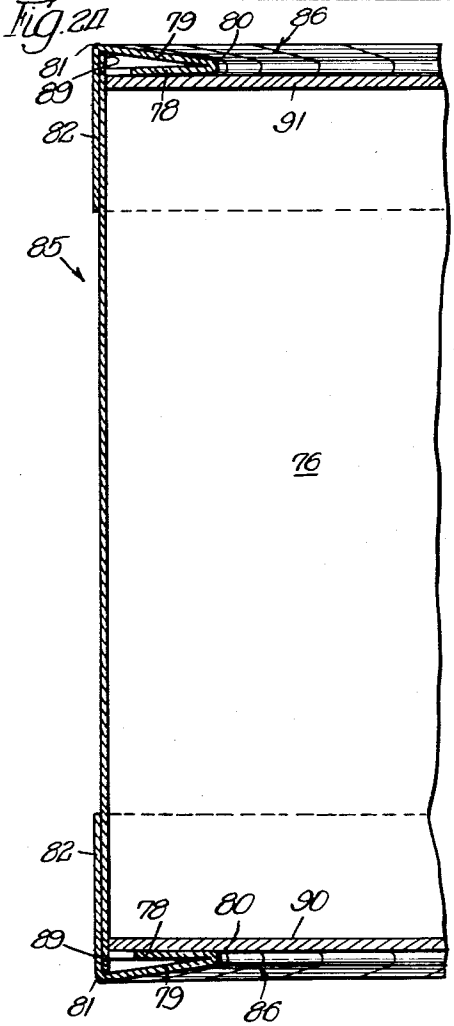



Fig. 23

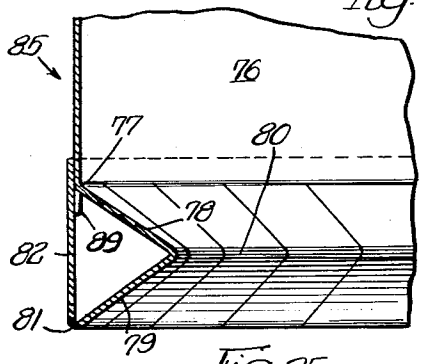
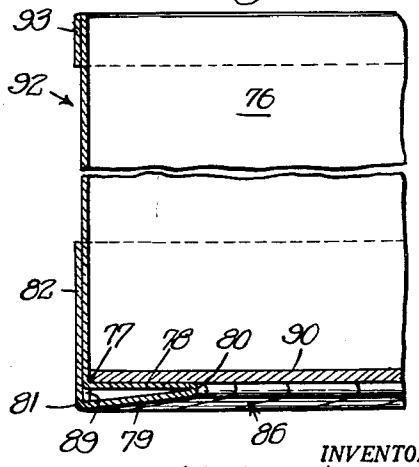



Fig. 25




INVENTOR.
Edwin L. Arneson,
BY
Cromwell, Greist & Warden
Attys.

Oct. 31, 1961 E. L. ARNESON 3,006,522

COLLAPSIBLE CONTAINER

Filed March 11, 1957 8 Sheets-Sheet 6

Fig. 26

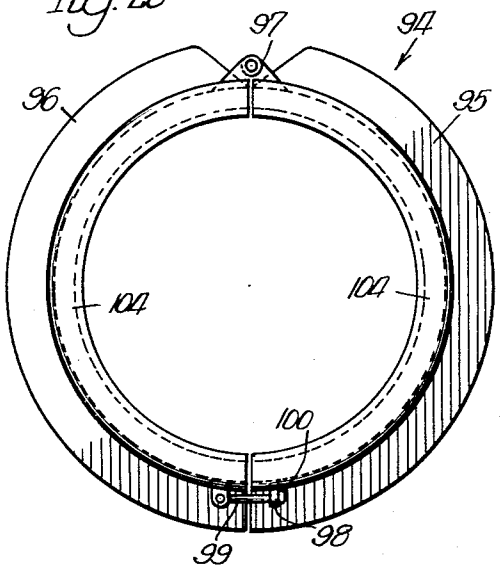



Fig. 27

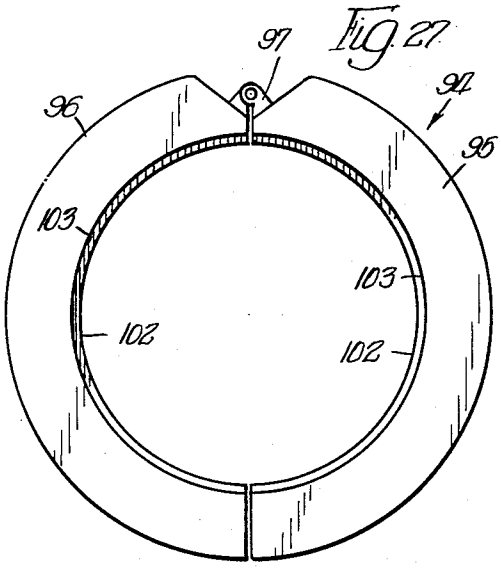



Fig. 28

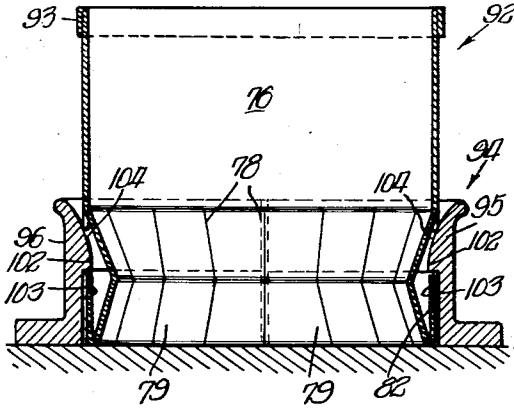
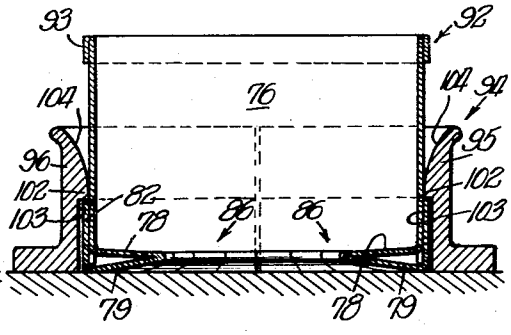



Fig. 29




INVENTOR.
Edwin L. Arneson,
BY
Cromwell, Grist & Warden
Attys.

Oct. 31, 1961 E. L. ARNESON 3,006,522

COLLAPSIBLE CONTAINER

Filed March 11, 1957 8 Sheets-Sheet 7

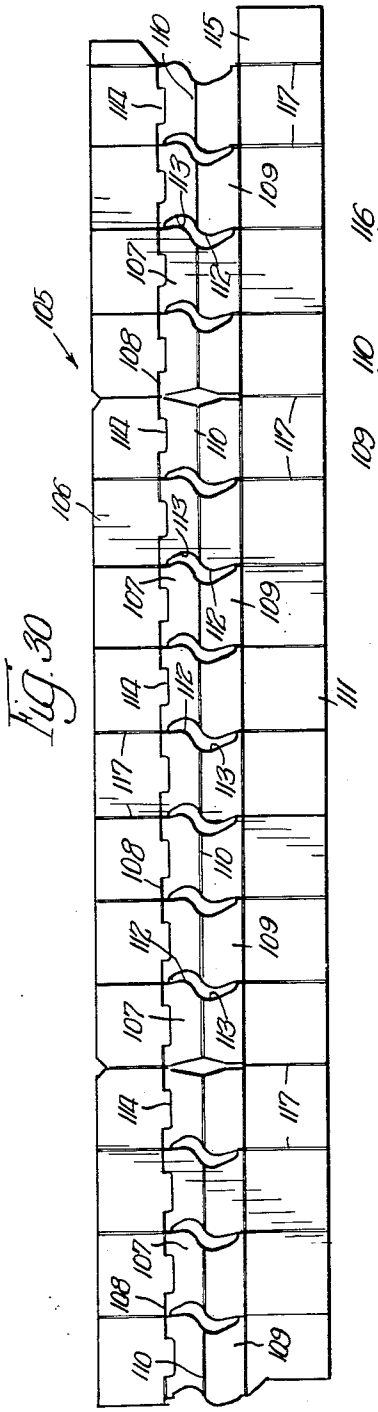


Fig. 30

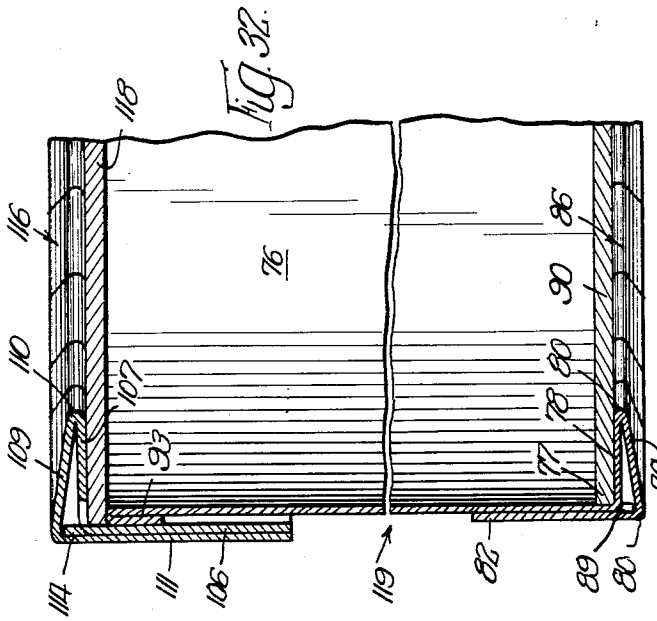


Fig. 32

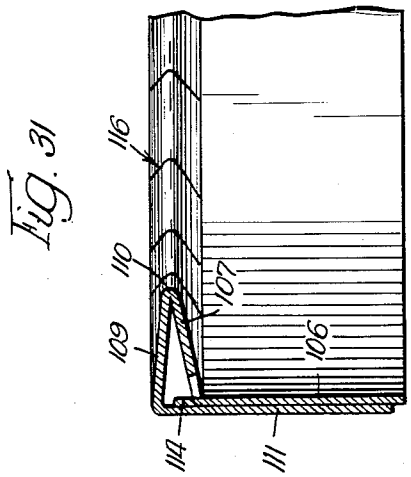


Fig. 31

INVENTOR.
Edwin L. Arneson,
BY
Cromwell, Sturtz & Warden
Attys.

Oct. 31, 1961 E. L. ARNESON 3,006,522

COLLAPSIBLE CONTAINER

Filed March 11, 1957 8 Sheets-Sheet 8

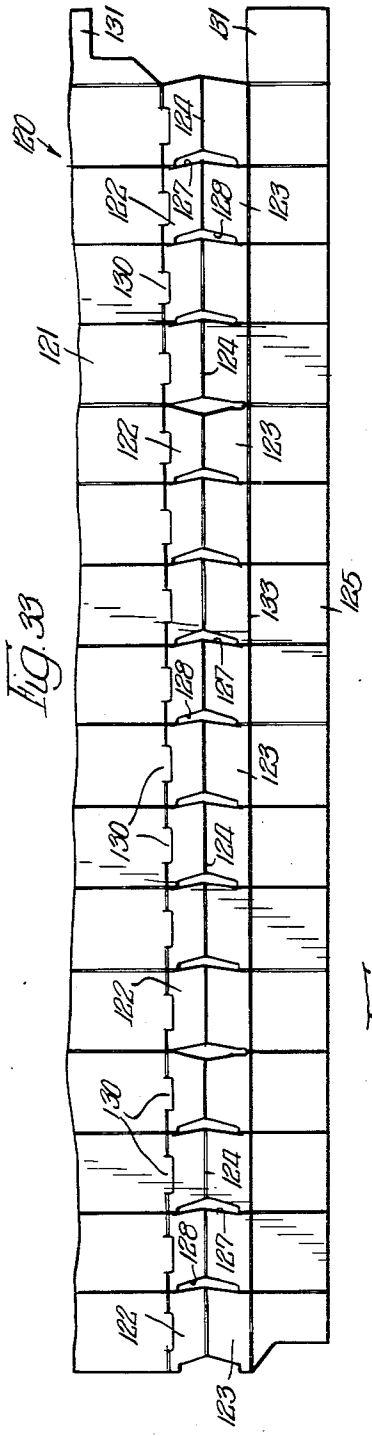



Fig. 33

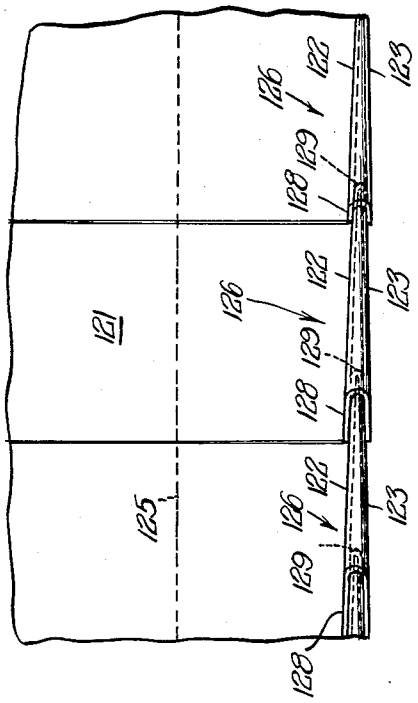



Fig. 35

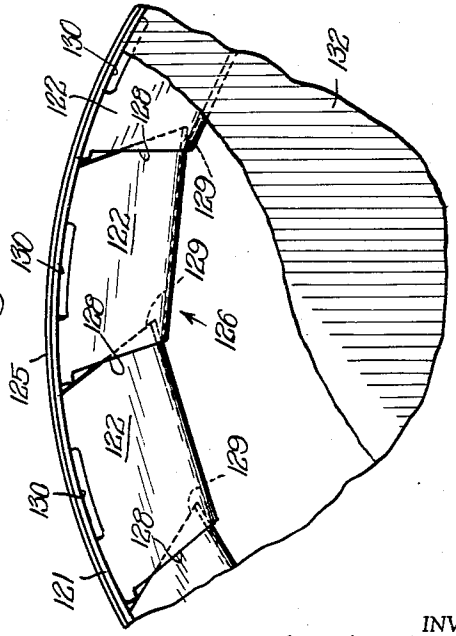



Fig. 34

INVENTOR.
Edwin L. Arneson,
BY
Cromwell, Greist & Warden
Attys

United States Patent Office 3,006,522 Patented Oct. 31, 1961



3,006,522

# COLLAPSIBLE CONTAINER

Edwin L. Arneson, Morris, Ill., assignor to Federal Paper Board Company, Inc., Bogota, N.J., a corporation of New York

Filed Mar. 11, 1957, Ser. No. 645,177
20 Claims. (Cl. 229—5.5)

The present invention relates generally to an improved form of collapsible container which is provided with new and improved end closure or partition supporting means, the new and improved supporting means capable of being formed integral with the main body portion of the container and/or a cover member from a one-piece blank. Still further, the present invention is directed to a container-forming apparatus for use in erecting the new and improved end closure or partition supporting construction to place the container provided with the same in condition for use.

It is an object of the present invention to provide an improved partition or closure supporting arrangement integrally formed with the body portion of a container from a single blank, the container blank provided with the improved supporting arrangement being capable of formation into a collapsed container in an efficient and time-saving manner, and the collapsed container being readily and easily erectable to provide a strong and long lasting partition or end closure supporting arrangement, the partition or closure being readily and easily insertable within the container into supporting relation with the new and improved supporting arrangement.

Another object is to provide an end construction for a container which is readily adapted for integral formation with the body portion of the container from a single one-piece blank, the end construction being of uncomplicated design and being readily and inexpensively formed, the end construction still further being readily erectable into operative position and adapted for collapsing to allow the container provided with the same to be folded in a flattened condition for storage and shipment purposes, the end construction still further being provided with sturdily constructed and arranged enclosure supporting means which are self-bracing and adapted for long-life use.

A further object is to provide a closure or partition supporting arrangement adapted for use with a container, which arrangement incorporates certain features of design which adapts the same for several modified uses with different types of containers and which further allows the same to be continuously reused following collapsing or erection over a long period of time, the supporting arrangement and associated container being inexpensively formed and, in this respect, being disposable if desired.

Still another object is to provide an erecting device particularly adapted for use with the end construction of the present invention, the device being used primarily with a specific form of end construction incorporating the principles of the present invention to erect the same with respect to an associated body container portion when the container is placed into use from a collapsed storing condition.

Other objects not specifically set forth will become apparent from the following detailed description made in conjunction with the drawings wherein:

FIG. 1 is a plan view of a container blank having integrally formed therewith the elements of the end construction of the present invention;

FIG. 2 is an elevation on reduced scale of an erected container formed from the blank of FIG. 1;

FIG. 3 is a sectional view of the blank of FIG. 1 illustrating the first stage in the operation of forming a collapsed container from the same;

FIG. 4 is a view similar to FIG. 3 illustrating further



steps taken in forming a container from the blank of FIG. 1;

FIG. 5 is a top plan view illustrating the final steps taken in forming the blank of FIG. 1 into a collapsed container;

FIG. 6 is an end elevation of a completely formed collapsed container;

FIG. 7 is a bottom plan view of the erected container formed from the blank of FIG. 1;

FIG. 8 is an enlarged fragmentary section of the end construction of the container taken generally along line 8—8 of FIG. 7;

FIG. 9 is a bottom plan view partly broken away of the completely erected container formed from the blank of FIG. 1 having an end closure inserted in its operative supported position;

FIG. 10 is an enlarged fragmentary section of the end construction and end closure taken generally along line 10—10 of FIG. 9;

FIG. 11 is a fragmentary plan view of a blank having integrally formed therewith elements of a modified form of end construction;

FIG. 12 is a side elevation on reduced scale of an erected container formed from the blank of FIG. 11;

FIG. 13 is an enlarged fragmentary vertical section of the end construction of an erected container formed from the blank of FIG. 11 prior to the insertion of an end closure;

FIG. 14 is a fragmentary vertical section similar to FIG. 13 illustrating the positioning of an end closure in its operative position;

FIG. 15 is a fragmentary plan view of a container blank having integrally formed therewith elements of a further modified form of end construction;

FIG. 16 is a fragmentary top plan view of an erected container formed from the blank of FIG. 15 and having the end closure partially broken away to illustrate the structural features of the assembled end construction;

FIG. 17 is a plan view on reduced scale of a container blank having integrally formed therewith elements of still another modification of the end construction of the present invention;

FIG. 18 is an elevation of a container formed from the blank of FIG. 17;

FIG. 19 is a fragmentary and enlarged vertical section of the container of FIG. 18 illustrating the positioning of the elements of the end construction just prior to completed assembly of the same;

FIG. 20 is a view similar to FIG. 19 illustrating the end construction of the container of FIG. 18 in its fully assembled form;

FIG. 21 is a fragmentary vertical section of the container of FIG. 18 prior to the erection of the end construction of the same;

FIG. 22 is a fragmentary plan view of a blank having formed therewith still a further modification of the end construction of the present invention;

FIG. 23 is an enlarged fragmentary vertical section of a container formed from the blank of FIG. 22 illustrating the relative positioning of the elements of the end construction prior to complete erection of the container;

FIG. 24 is an enlarged fragmentary vertical section of a container erected from the blank of FIG. 22;

FIG. 25 is an enlarged fragmentary vertical section of a completely erected container formed from a blank modified in certain respects as compared to the blank of FIG. 22;

FIG. 26 is a top plan view of a device particularly adapted for use in erecting the form of end construction provided the blank of FIG. 22;

FIG. 27 is a bottom plan view of the device of FIG. 26;

FIG. 28 is a vertical section of the device of FIG. 26 illustrating its use with a container of the type shown in FIG. 25 in erecting the end construction of the same;

FIG. 29 is a view similar to FIG. 28 illustrating the final assembly of the end construction;

FIG. 30 is a plan view of a container cover member blank having integrally formed therewith the elements for supporting an end closure disk, these elements utilizing the structural principles of the end structure elements illustrated in FIG. 22;

FIG. 31 is an enlarged fragmentary vertical section of the cover member of FIG. 30 illustrating the relative positioning of the elements of the closure disk supporting construction prior to complete erection of the cover member;

FIG. 32 is an enlarged fragmentary vertical section of the erected cover member mounted in its operative position on an erected container;

FIG. 33 is a fragmentary plan view of a blank formed to provide a further modified end construction for supporting a closure disk;

FIG. 34 is an enlarged fragmentary plan view of an erected end construction using the blank of FIG. 33 and illustrating the modified form of cooperating flange structure; and

FIG. 35 is an enlarged fragmentary elevation of the erected end construction utilizing the blank of FIG. 33 and further illustrating the cooperating action between the flanges thereof.

While the following description deals with the formation of cylindrical containers which are adapted for use in the packaging of many different items and are particularly associated with the merchandising of ice cream and other foodstuffs, it should be understood that the structural features to be described in connection with the end construction of these containers are adapted for use with many different forms of containers. Still further, the type of container to be described is a disposable type formed from flexible cardboard material, and while the description of the present invention is limited to this type of cylindrical container, it is not intended by so limiting the description to limit the scope of the present invention. Consequently, the use of the principles and structural features of the end construction of the present invention may be varied considerably and such variable uses are intended to fall within the scope of the present invention. It should be clear that the containers may be of any desired shape, such as oval or cone-shaped, and if desired, the shapes of the containers including the end construction of the present invention may be such that the containers are capable of being nested in their erected condition.

In FIG. 1 a blank **30** is illustrated as including a body portion panel **31**, the lowermost margin of which is defined by a score line **32** extending continuously across the same. Integrally formed with the lowermost margin by the score line **32** are a plurality of spaced fingers **33** which have integrally formed therewith along margins defined by interrupted score lines **34**, a second series of spaced fingers **35**. The lowermost margins of the fingers **35** are defined by a continuous score line **36** which defines the area of integral interconnection between the fingers **35** and a continuous band or strip **37**. The band **37** defines the lowermost portion of the blank **30** and through the integral interconnection between the fingers **33** and **35**, the band **37** maintains the two series of spaced fingers in proper alignment with the body portion panel **31**. The spacing between the pairs of fingers **33** and **35** is defined by a plurality of S-shaped apertures **38** which are formed from the excising of material of the blank **30**. The apertures **38** define recesses **39** and projections **40** in the side margins of the fingers **33** and **35**. Opposite side margins of each finger are provided with a recess **39** and a projection **40** and, as will be subsequently more clearly described, the S-shaped apertures allowed the side margins of the fingers **33** and **35** to be brought into abutting engagement upon the erection of a container from the blank **30** and the projections **40** of adjacent pairs of fingers cooperate with one another in overlapping relation to provide the fingers with mutual support.

The body portion panel **31**, just inwardly of its opposite or top margin, is provided with a score line **41** extending continuously across the panel **31** and defining a foldable edge band or strip **42**. The blank **30** is divided into transverse sections by score lines **43** and **44** which extend across the entire blank **30** including the strips **37** and **42** and are interrupted solely by diamond-shaped openings **45** separating adjacent pairs of fingers **33** and **35** from one another. The openings **45** allow the assembled blank **33** to be folded along the score lines **43** and **44** to place the container formed from the blank **30** in a collapsed condition for storage and shipment purposes. The upper right hand corner of the blank **30** has a cut-out portion **46** formed by removal of an end section of the strip **42** for a purpose to be described. The lower left hand corner of the blank **30**, as viewed, is provided with a tab **47** which is a continuation of the strip **37**. The fingers **35** are of greater length than the fingers **33** to allow the end construction formed thereby to be assembled as will now be described in connection with FIGS. 3–6.

In FIG. 3 the initial folding operation followed in forming the blank **30** into a cylindrical container **48** shown in FIG. 2 is accomplished by the folding of the end construction, including the fingers **33** and **35** and band **37**, along the score line **32** against the inner surface of the body portion panel **31** which is the bottom surface as viewed in FIG. 3. The second step is shown in FIG. 4 in solid lines and includes the reverse folding of the fingers **35** and band **37** along the score line **34** and against the inner surfaces of the fingers **33** to allow the band **37** to project outwardly with respect to the end of the body portion panel **31**. At this stage in the folding operation a suitable adhesive is applied to the exposed upper surfaces of the strips **37** and **42** and the same are folded respectively along their score lines **36** and **41** into the position shown in broken lines. The adhesive applied to their top surfaces promotes adhesion between opposed surfaces of the strips **37** and **42** and portions of the outer surface of the body portion panel **31**.

As illustrated in FIG. 5, the fingers **33** and **35** have been folded against one another and form flat flanges generally designated by the numeral **49** which lie flat against the inner surface of the body portion panel **31** in parallel relation thereto. The right hand section of the body portion panel **31**, as viewed, with its associated end construction elements is folded inwardly along the score line **43** into parallel relation with the inner surface of the center portion of the body portion panel **31**. Upon the completion of this folding operation a suitable adhesive is applied to the edge portion **50** of the outer surface of the blank **30** and the left hand section of the blank is folded along the score line **44** into contact therewith. The excised portion **46** allows edge contact between the ends of the strip **42**, and the flap **47** allows the strip **37** to be formed into a continuous outer band. Following the final folding step a collapsed container **48** formed from the blank **30** is completed as illustrated in FIG. 6. The container **48** in its collapsed condition may be conveniently stored or shipped in large quantities at low cost due to the space-saving features present.

Referring to FIGS. 7–10, the stages of erection of the collapsed container **48** of FIG. 6 will be described. In FIG. 7 the container **48** is shown after being moved into a cylindrical shape from its collapsed condition of FIG. 6 and, as particularly illustrated in FIG. 8, the

flanges 49 formed from the fingers 33 and 35 tend to move radially outwardly from the inner surface of the body portion panel 31 during the shaping operation. The fixing of the band 37 to the outer surface of the bottom edge of the body portion panel 31 fixes the relation of the fingers 33 and 35 with respect to one another. As previously described, the fingers 35 are of greater length than the fingers 33 and this arrangement allows the body portion panel 31 to be moved into a cylindrical shape without the fingers 35 pulling the fingers 33 downwardly to an extent that the flanges 49 formed thereby are directed outwardly of the bottom portion of the container 48. The initial stage of erection of the container 48 places the flanges 49 in an inclined relation with the inner surface of the body portion panel 31, as shown in FIG. 8, and the side margins of the fingers 33 and 35, defined by the grooves 39 and projections 40 move toward one another as shown in FIG. 7. Upon completion of the shaping of the body portion panel 31 of the container 48, and end closure or disk 51 is inserted within the body portion of the container 48 through the opening in the top thereof and moved downwardly into flat and edge-abutting relation with the top surfaces of the fingers 33 as shown in FIGS. 9 and 10. The forcing of the disk 51 downwardly moves the flanges 49 into a substantially flat condition, as shown in FIG. 10, and further downward movement of the flanges 47 is limited by the bracing action of the fingers 35. In their final operative position, the flanges 49 are brought into edge-abutting relation with one another, as shown in FIG. 9, and the projections 40 of the fingers 33 and 35 abut the edges of adjacent grooves 39.

Referring again to the blank 30 of FIG. 1, it will be particularly noted that each adjacent pair of interconnected fingers 33 and 35 forming flanges 49 have their projections 40 and recesses 39 oppositely positioned. Consequently, the oppositely positioned projections 40 will overlap one another when the container 48 is fully erected. This feature is shown in FIG. 9 wherein a portion of one of the bottom fingers 35 is broken away and its associated top finger 33 positioned thereabove is partly shown with its projection 40 overlapping the projection 40 of an adjacent bottom finger 35. The overlapping of the projections 40 provides mutual supporting action between the flanges 49 to further strengthen the end construction. The bringing of adjacent side margins of the fingers 33 and 35 into abutting relation, as illustrated in FIG. 9, further provides a tightly sealed end construction and prevents lateral displacement of the flanges 49 from their operative position in supporting the disk 51. As further shown in FIG. 9, the diamond-shaped openings 45 are substantially closed by abutment between opposite edges of the same when the flanges 49 are in supporting relation with the disk 51. The completely erected container 48 of FIG. 2 is provided with a strongly supported bottom end construction which is completely closed and a suitable lid or closure member of any known type may be applied to the top thereof following the filling of the same with the material to be packaged.

In FIG. 11 a slightly modified blank 52 is provided with the same structural features of the blank 30 of FIG. 1 with but a slight change in dimensions of the fingers forming the bottom disk supporting flanges. As a result of the structural similarities between the elements of the blanks 52 and 30, the same reference numerals are used to indicate similar parts thereof. The blank 52 is designed to allow the strip 37 to be folded against the inner surface of the body portion panel 31 and to bring this about the fingers 35 are shorter in length than the fingers 33. The reason for this difference in length is clearly illustrated in FIGS. 13 and 14 and a cylindrical container 53 shown in FIG. 12 results from the folding of the blank 52.

Referring particularly to FIGS. 13 and 14, the band 37 and associated fingers 33 and 35 are folded in such a manner that the band 37 is adhesively fixed to the inner surface of the body portion panel 31 near the bottom edge thereof. As shown particularly in FIG. 13, the erected container 53 prior to the insertion of a bottom disk is provided with the inwardly directed and upwardly inclined flanges 47. As a result of the placing of the band 37 within the body portion panel 31 of the container 53, the fingers 35 become the fingers which directly contact the disk 51 when the same is inserted in its end closing position as shown in FIG. 14. The fingers 33 become the bracing fingers and are of greater length than their interconnected fingers 35 to brace the same from movement outwardly of the end of the container 53 when weight is applied thereto. Generally speaking, the band 37 and fingers 33 and 35 may be accordion-folded about their interconnecting score lines, adhesive applied to the band 37 and the entire accordion-pleated assembly folded about the score line 32 in parallel relation with the body portion panel 31 and pressed against the same to an extent that the band 37 adheres to the inner surface thereof.

A further slight modification of the end construction of the present invention is shown in FIGS. 15 and 16 wherein a portion of a modified blank 54 is illustrated as being provided with a body portion panel, interconnected pairs of flange-forming fingers and a marginal continuous strip similar to the elements described in connection with the blank 30 of FIG. 1. These elements being exactly the same with respect to their functioning are also identified by the same reference numerals and the modifications residing in the blank 54 deals with the shape of the openings between the flange-forming fingers. The side margins of each of the fingers 33 and 35 of the blank 54 are inclined inwardly toward their interconnections to define diamond-shaped openings 55 between each of the interconnected pairs of fingers. As shown in FIG. 16, in looking downwardly through the top opening of a completely assembled and erected container 56 formed from the blank 54 and having a portion of the bottom end closure 51 broken away, the adjacent edges 57 of the diamond-shaped openings 55 are brought into abutment to provide a completely closed ring of flanges 49 in supporting relation with the bottom disk 51. While the overlapping functioning of the material of the fingers 33 and 35 defining the S-shaped openings 38 of the blanks 30 and 52 is preferred, it has been found that the bracing action afforded by the relative positioning of the fingers 33 and 35 and the positioning of the band 37 with respect to the body portion panel 31 is adequate to properly support the end closure 51 against displacement and prevent end failure in the erected and filled container.

FIG. 17 illustrates a further modified blank 58 from which a cylindrical container may be formed being provided with an end construction of the type described in connection with FIGS. 1–10. The blank 58 is formed from a body portion panel 59 provided just inwardly from its uppermost margin, as viewed, with a continuous score line 60 extending across the blank 58 and defining a top band 61. The lowermost margin of the body portion panel 59 is defined by a continuous score line 62 which in turn defines the integral connection of the bottom margin of the body portion panel 59 with a plurality of spaced fingers 63, each of which is integrally joined with a second series of spaced fingers 64, the line of connection being defined by an interrupted score line 65. The lowermost margins of the fingers 64 opposite their margins of interconnection with the fingers 63 are defined by a continuous score line 66 which in turn defines their points of integral interconnection with a continuous strip or band 67. The spacing of adjacent pairs of fingers 63 and 64 is provided by a plurality of excised portions 68 which are S-shaped and are provided with edges having overlapping projections and adjacent re-

cesses of the type previously described. The blank **58** is subdivided transversely by a plurality of spaced score lines **69** to facilitate the forming of a cylindrical container **70**, shown in FIG. 18, which has a large diameter.

The container **70** of FIG. 18 is formed from the blank **58** by reversely folding the band **67** about the score line **66** and against the outer surfaces of the fingers **63** and **64** as shown in FIG. 21. The blank **58** is then folded and glued to form a collapsed container **70** (not shown) which is erectable as will be described. Adhesive is now applied to a surface of the band **67** to fix the same with respect to the outer surface of the body portion panel **59**. To properly form the blank **58** into a collapsed container **70** the body portion panel **59** and strip **67** are provided with flaps **71** and **72** respectively which overlap the opposite ends of the panel and band for fixing thereto by the use of adhesive as previously described in connection with the blank of FIG. 1.

FIGS. 19–21 illustrate the difference in functioning of certain elements of the blank **58** when the same is formed into the container **70**. The fingers **64** are of greater length than the fingers **63** to allow the latter to be moved into a substantially horizontal plane at right angles with the vertical side walls defined by the body portion panel **59**. The fingers **64** are inclined upwardly in an inwardly direction to brace the fingers **63** in forming a plurality of inwardly directed edge-abutting flanges **73** of the type previously described. An end closure **74** is then placed in supporting engagement with the top surface of the fingers **63** and the container **70** is completely formed. In bringing this about, the positioning of the band **67** must be fixed with respect to the outer surface of the body portion panel **59** to maintain the flanges **73** in their edge-abutting and disk-supporting position. The body portion panel **59** is relatively short in height whereas the band **67** is relatively wide, and in erecting the container **70** from a collapsed condition the band **67** is slidingly moved along the outer surface of the body portion panel **59** toward the upper end thereof. The extent of upward movement of the band **67** is limited to place the flanges **73** in their operative positions by edge-abutment between the top marginal edge of the band **67** with the bottom marginal edge of the outwardly and downwardly folded strip **61**. Abutment between these edges is shown in FIG. 20 and the flanges **73** at this final stage of the erection of the container **70** extend inwardly in proper supporting relation with the end closure **74** and in partially overlapping and edge-abutting relation with adjacent flanges **73**.

As shown in FIG. 21, in forming the container **70** from the blank **58** into collapsed condition it is necessary merely to reversely fold the band **67** against the outer surfaces of the fingers **63** and **64** and the body portion panel **59**. The width of the band **67** may be sufficient to overlap a portion of the panel **59** extending inwardly beyond the score line **62**, but it has been found that in erecting the carton **70** from its collapsed form the band **67** will be capable of sliding upwardly along the outer surface of the body portion panel **59** even though its uppermost marginal edge is positioned adjacent or below the score line **62**.

Still a further modification of end construction for collapsible containers is shown in FIGS. 22–25. Referring in particular to FIG. 22, a blank **75** is illustrated as having a body portion panel **76** integrally formed with identical end constructions along each of the opposite end margins thereof. Each of these opposite margins is partially defined by interrupted score lines **77** which hingedly attach fingers **78** to the body portion panel **76**. Fingers **79** of greater length than the fingers **78** are integrally connected to margins of the fingers **78** by interrupted score lines **80**. Continuous score lines **81** define continuous marginal strips or bands **82** and the pairs of attached fingers **78** and **79** are spaced from one another by S-shaped excised portions **83**, the edges of which define projections and recesses of the type previously described. The blank **75** is transversely divided into relative foldable sections by a plurality of spaced score lines **84**, and in folding the blank **75** to form a container **85** in its collapsed form, the procedure described in connection with the blank **58** of FIG. 17 is followed and the elements of the end constructions in their collapsed condition are similar to that illustrated in FIG. 21.

The blank **75** differs from the blank **58** in that similar end constructions are provided for both ends of the container **85** formed therefrom. The blank **75** is particularly adapted for use in the formation of tall containers wherein the bands **82** are positioned about outer end surfaces of the body portion panel **76** in slidable relation therewith and are not fixed thereto by the use of adhesive or any other suitable means. To allow the bands **82** to be positioned about the outer surface of the body portion panel **76**, the fingers **79** are of greater length than the fingers **78** to brace the latter in providing a plurality of edge-abutting flanges **86** similar to the flanges **73** previously described. The blank **75** is further provided with a tab-like portions **87** and **88** integrally formed with the body portion panel **76** and bands **82** respectively for adhesive interconnection with the opposite margins of the blank **75** during the formation of a collapsed container **85**.

To limit the slidable movement of the bands **82** toward the center of the body portion panel **76** upon the erection of the container **85** and thereby assuring proper positioning of the flanges **86**, abutment means in the form of lugs or projections **89** are excised from the material of the fingers **78** adjacent their interconnection with the marginal portions of the body portion panel **76**. The lugs **89** are retained in coplanar relation with the body portion panel **76** when the blank **75** is formed into a collapsed container **85** and the same is erected as shown in FIG. 24. The outermost edges of these lugs abut the inner surfaces of the fingers **79** near the score lines **81** when the fingers **78** and **79** are properly positioned in supporting relation with a bottom end closure disk **90** and in confining relation with a top end closure disk **91** as shown in FIG. 24. The extent to which the lugs **89** project outwardly from the score lines **77** controls the extent to which the bands **82** move toward the center of the body portion panel **76** in sliding engagement with the outer surface thereof thereby controlling the desired positioning of the flanges **86**.

As previously described, the bands **82** are positioned about the outer surfaces of the fingers **78** and **79** when the container **85** is in its collapsed condition. In erecting the container **85** the bottom band **82** is moved inwardly toward the center of the body portion panel **76** as shown in FIG. 23 and the fingers **78** and **79** move relative to one another to ultimately form the flanges **86** directed radially inwardly toward the center of the container **85**. Upon continued movement of the bottom band **82** toward the center of the body portion panel **76**, the lugs **89** ultimately contact the fingers **79** near their integral connection with the band **82** as defined by the score line **81**. The bottom end closure **90** is then placed within the interior of the container **85** in resting engagement with the top surfaces of the fingers **78**. The container may be filled with any type of material and a top end closure **91** is then placed within the container to seal the top end thereof and the top end construction is manipulated in the same manner as described in connection with the bottom end construction shown in FIG. 23 to fix the top end closure **91** within the container as shown in FIG. 24.

The use of end constructions of the type described at each end of the container **85** is particularly desirable where the material placed within the container is of substantial weight. For example, containers of this nature are particularly adapted for the packaging of roofing

tar or wax and regardless of which end supports the total weight of the contents of the container, the flanges **86** are capable of preventing failure of the container **85** which would result in loss of contents or exposure of the same. In gaining access into the interior of the container **85** it is necessary merely to retract one of the bands **82** by sliding it away from the center of the body portion panel **76** thereby bringing the fingers **78** and **79** into substantially coplanar relation with the body portion panel **76**. At this point the end closure **90** or **91** may be removed and the material within the container **85** is made accessible.

In FIG. 25 the same type of end construction previously described in connection with the blank **75** of FIG. 22 is illustrated as being utilized with a container **92** at the bottom end thereof. The top end of the container **92** is provided with an outwardly and downwardly turned band **93** adhesively secured to the outer surface of the body portion panel **76** and adapted to receive thereabout a conventional form of top end closure or lid. From a description of the elements shown in FIGS. 22–24, it should be clear that the end construction is fully adapted for use at either one or both ends of a container depending upont he type of end closure support desired.

FIGS. 26–29 illustrate a device **94** for use in erecting the end construction described in connection with FIGS. 22–25. In FIGS. 26 and 27 the device **94** is illustrated as being formed from separate semi-circular member **95** and **96** which are connected by a hinge **97** to allow the members to be moved away from one another to receive therebetween a container carrying an end construction for erection. The member **95** carries a pair of ears **98** which receive therebetween a locking rod **99** hinged at one end to the member **96**. The end of the locking rod **99** received within the ears **98** is provided with a nut **100** which holds the members **95** and **96** in their operative relation while the container positioned therewithin is having its end construction erected.

The manner in which a container **92** is placed into completely erected condition by use of the erecting device **94** is illustrated in FIGS. 28 and 29. The members **95** and **96** along their inner vertical surfaces are provided with horizontally aligned, radially inwardly directed arcuate flanges **102** which define radially and downwardly opening grooves **103** for receiving therewithin the strip **82** of the container **92**. The strip **82** is positioned within the grooves **103** by closing the members **95** and **96** with respect to one another and locking the same by use of the rod **99** and ears **98**. The innermost surfaces of the flanges **102** are arcuate and incline outwardly in an upwardly direction to provide a camming surface to buckle the fingers **78** and **79** about their interconnecting score lines **80** inwardly and urge the lugs **89** inwardly when the body portion panel **76** is moved downwardly into the interior of the device **94**. As shown in FIG. 28, the body portion panel **76** is in the process of being moved downwardly and the fingers **78** and **79** are moving into their radial relation with the body portion panel **76** to form the flanges **86**. The lugs **89** are being cammed inwardly by the inwardly sloping surfaces **104** to clear the upper edge of the band **82** received within the grooves **103**. As shown in FIG. 29, the lugs **89** have cleared the top edge of the band **82** to allow the same to be brought into abutting relation with the top surface of the fingers **79** near their score lines **81** interconnecting the same with the band **82**.

Upon completion of the operation as shown in FIG. 29, the flanges **86** are properly positioned within the container **92** to receive in supported relation therewith an end closure disk. The completely erected container **92** is removed from the erecting device **94** by releasing the locking bar **99** and moving the members **95** and **96** away from one another about their hinge connection **97**.

The foldable flange type closure disk supporting construction described in connection with the drawings with emphasis being placed on the different modified forms of constructions utilizing the principles of the present invention can readily be incorporated in the formation of a removable cover member for use with any known type of container and particularly for use with the type of containers previously described. In FIG. 30 a one-piece cover member blank **105** is illustrated as being formed from a band or strip **106** integrally attached along one of its margins to a plurality of fingers **107** which are foldable relative thereto along periodically interrupted score lines **108**. The margins of the fingers **107** opposite their attachment to the band **106** are integrally formed with cooperating fingers **109** by score lines **110**. The opposite margins of the fingers **109** are in turn integrally and foldably formed with a strip or band **111** to thus complete the main elements of the blank **105**.

The foldable finger construction is similar to that described in FIG. 22 in connection with the blank **75** and the opposite side margins of the fingers **107** and **109** are provided with cooperative projections **112** and recesses **113** to provide a self-supporting flange arrangement when the blank **105** is erected. Similarly, the margin of the band **106** interconnected with the fingers **107** is provided with spaced flanges or tabs **114** which are excised from the material of the fingers **107**. Suitable end tabs **115** are provided at the ends of the bands **106** and **111** for gluing purposes as previously described for the forming of the blank **105** into a collapsed cover member or cover member rim.

The collapsed cover member rim is formed from the blank **105** by folding the blank in half along its approximate center line defined by the score lines **110** thus forming flanges **116** illustrated in FIG. 31 which are folded inwardly into edge or side abutting relation. A series of transverse score lines **117** allow the blank **105** to be readily folded, glued and erected in a rim-like shape with the flanges directed inwardly as illustrated in FIG. 31. The band **111** is received about the outer surface of the band or cover member body portion **106** in sliding relation therewith as a result of the fingers **109** being of greater length than the fingers **107**. In erecting the cover member rim of FIG. 31 the band **111** and **106** are slidably moved relative to one another in opposite directions until the ends of the tabs or flanges **114** abut the inner surfaces of the fingers **109**. The cover member rim formed from the blank **105** is readily erected for use from a collapsed condition in the same manner as described in connection with the end constructions of the container formed from the blank **75** of FIG. 22.

FIG. 32 illustrates the use of the cover member rim formed from the blank **105** in fixing a closure disk **118** in sealing engagement with the top edge of a container **119**. The container **119** is of the same construction as the container **92** of FIG. 25 and, as a result, like reference numerals are used to identify the same structural elements. Upon complete erection of the cover member rim from the blank **105**, the closure disk **118** may be readily received therein in supported engagement with the outermost surfaces of the fingers **107** and thus held in engagement with the top edge of the container wall **76**. The completely assembled cover member is readily received about the outer surface of the container **119** and may be readily removed therefrom, dismantled and refolded into its collapsed condition for storage prior to reuse if such is desired. The type of cover member described in connection with FIGS. 30–32 may be readily set up or erected similarly to the containers **93** by use of the apparatus illustrated and described in FIGS. 26–29. While a cover member has been described as being formed from a flange arrangement of the type illustrated in FIG. 22, it should be apparent that the flange arrangements of FIGS. 1, 11, 15 and 17 may also be used.

Still a further modified form of disk supporting flange structure is shown in FIGS. 33–35. In first considering FIG. 33, an end structure of a blank **120** is illustrated as including a body portion panel **121** having integrally at-

tached thereto a plurality of fingers **122**. The margins of the fingers **122** opposite their attachment to the body portion **121** are integrally formed with cooperating fingers **123** by score lines **124**. The opposite margins of the fingers **123** are in turn integrally and foldably formed with a marginal strip or band **125**. The joined fingers **122** and **123** cooperate to define closure disk supporting flanges **126** which in their erected condition, as shown in FIGS. 34 and 35, have the side margins thereof telescopically related with adjacent side margins of adjacent flanges.

To provide for interleaving or telescopically joining adjacent flanges **126**, each of the joined finger structures of the blank **120** is provided with an outwardly inclined or projecting side margin **127** and an inwardly recessed opposite side margin **128**. Thus, each finger construction defining a flange **126** is offset centrally thereof at the score line **124** in a direction toward the right as viewed in FIG. 33. The central offsetting of each finger construction may be reversed, i.e. to the left as viewed in FIG. 33, as long as the direction of offset is consistent in any one blank. Upon forming the flanges **126** in the same manner as previously described in connection with the several modifications of the present invention, the projecting side margins **127** of cooperating fingers **122** and **123** form a projection **129** which is telescopically received within an adjacent flange **126**, the recessed side margins **128** of the fingers **122** and **123** of the adjacent flange overlapping a substantial marginal portion of the projection **129**. Thus, with each flange **126** the projecting side margins **127** of the same are telescopically received in an adjacent flange while the recessed side margins telescopically receive another flange to define an alternating telescopic and interleaved structure.

In all other structural respects the end construction of the blank **120** is the same as those previously described which utilize spaced flanges or tabs **130** excised from the material of the fingers **122**. Suitable end tabs **131** are provided at the ends of the body portion **121** and band **125** for gluing purposes in the manner previously described when the blank **120** is formed into a cylindrical end construction. As shown in FIG. 34, a closure disk **132** is supported by the inner surfaces of the flanges **126** and the interleaving structural arrangement of these flanges provides increased support for the closure disk **132** thus allowing the container which includes this particular type of end construction to support and hold material of greater weight without rupturing.

The flange end construction of the blank **120** can be readily used in the formation of a bottom disk supporting structure in a container or a top disk supporting structure in a removable cover member for a container. The length of the body portion **121** will control this particular use and, as previously described, the end construction of the blank **120** is set up in the same manner as discussed above. Upon setting up this particular end construction the band **125** is received about the outer surface of the body portion **121** with the projecting tabs **130** abutting the outer end margins of the fingers **123** in close proximity to the continuous score line **133** integrally joining the fingers with the band **125**.

The above description illustrates different end constructions or closure disk supporting arrangements of uncomplicated design each of which is readily adapted for forming from a one-piece blank in integral connection with the main body portion of a collapsible container and collapsible cover member of the throw-away type. The forming of the one-piece blank including the end construction of the present invention may be readily accomplished by the use of uncomplicated cutting dies and the folding and fixing of the elements of the blank to provide a collapsed container or cover member is a simple process which does not require the use of expensive apparatus or skilled personnel. Many different variations may be utilized in the end construction of the present invention as illustrated by the various modifications described above and the principles utilized in the design of the end construction are readily adapted for variation to meet different requirements in the formation of collapsible containers. The elements of the end constructions are protected against damage during storage or shipment when the container or cover member is in its collapsed form by reason of the flanges formed from the relatively foldable fingers being received within the interior of the collapsed body portion of the container or cover member. Upon completion of the first stage of erecting the container or cover member from its collapsed condition, the flanges of the end construction move outwardly away from the inner surface of the body portion in position to receive in supporting relation an end closure disk inserted through the top of the container or bottom of the cover member and moved into contact with the flanges. Following use of the container or cover member, in the event that disposal of the same is undesired, the end closure disk may be readily removed from the interior of the body portion and the container or cover member may be returned to its collapsed condition with the flanges folded in substantially parallel relation with the body portion panel inwardly of the end thereof and protected by the same.

In addition to the foregoing important advantages residing in the use of the end constructions of the present invention, it should be particularly noted that the flanges forming the bottom of a container are closely related to the horizontal and thus positioned in close proximity to a supporting surface when the container is erected and being filled or used. Where the container is used in packaging ice cream, the use of a scoop or the like to remove the ice cream from the bottom portion of the container resulting in the scraping of the bottom closure disk by the scoop and the application of substantial pressure against the bottom closure disk does not cause the closure disk to rupture as the flanges of the end construction are in close proximity to the solid supporting surface. Still further, the flanges extend radially inwardly a substantial distance so as to provide the bottom closure disk with appreciable support inwardly of the periphery thereof.

This application is a continuation-in-part of my copending application, Serial No. 620,286, filed November 5, 1956, now abandoned, which is a continuation-in-part of my copending application, Serial No. 586,999, filed May 24, 1956, also now abandoned.

Obviously many modifications and variations of the invention as hereinbefore set forth may be made without departing from the spirit and scope thereof, and therefore only such limitations should be imposed as are indicated in the appended claims.

I claim:

1. An end construction of a cylindrical container member comprising a plurality of radially inwardly extending flanges, and an end closure disk supported by said flanges, each of said flanges being formed from a pair of interconnected fingers one of which is connected to the body portion of said container member and the other of which is connected to a continuous marginal band extending inwardly from the end of said container member provided with said flanges and in engagement with a surface of said body portion, one of the fingers of each pair being shorter in length than the other, said shorter finger being connected with said body portion and the other finger being connected with said band, said band being in engagement with the outer surface of said body portion and being movable relative thereto toward and away from the opposite end of said container member, the movement of said band toward said opposite end being limited by abutment means carried by said body portion to maintain the other finger of each flange in angular bracing relation with the shorter finger interconnected therewith.

2. The end construction of claim 1 wherein side por-

tions of adjacent flanges are interleaved in telescopic relation.

3. An end construction of a cylindrical container member comprising a plurality of radially inwardly extending flanges, and an end closure disk supported by said flanges, each of said flanges being formed from a pair of interconnected fingers one of which is connected to the body portion of said container member and the other of which is connected to a continuous marginal band extending inwardly from the end of said container member provided with said flanges and in engagement with a surface of said body portion, one of the fingers of each pair being shorter in length than the other, said shorter fingers being in direct supporting engagement with said end closure disk while said other fingers extend inwardly of the end of said container member interconnecting said band with the innermost ends of said shorter fingers in angular bracing relation therewith, said band being in engagement with the outer surface of said body portion and being movable relative thereto toward and away from the opposite end of said container member, the movement of said band toward said opposite end being limited by abutment means on the outer surface of said body portion, a marginal portion of said opposite end being folded inwardly of said body portion along the outer surface thereof to form said abutment means.

4. An end construction of a cylindrical container member comprising a plurality of radially inwardly extending flanges, and an end closure disk supported by said flanges, each of said flanges being formed from a pair of interconnected fingers one of which is connected to the body portion of said container member and the other of which is connected to a continuous marginal band extending inwardly from the end of said container member provided with said flanges and in engagement with a surface of said body portion, one of the fingers of each pair being shorter in length than the other, said shorter finger being connected with said body portion and the other finger being connected with said band, said band being in engagement with the outer surface of said body portion and being movable relative thereto toward and away from the opposite end of said container member, the movement of said band toward said opposite end being limited by abutment means carried by said body portion, said abutment means being in the form of spaced projections coplanar with said body portion and positioned to abut said other fingers at least adjacent their points of interconnection with said band to maintain a bracing angular relation with said shorter fingers by limiting movement of said band toward the opposite end of said container member.

5. The end construction of claim 4 wherein side portions of adjacent flanges are interleaved in telescopic relation.

6. An end construction of a cylindrical container member comprising a plurality of radially inwardly extending flanges, and an end closure disk supported by said flanges, each of said flanges being formed from a pair of interconnected fingers one of which is connected to the body portion of said container member and the other of which is connected to a continuous marginal band extending inwardly from the end of said container member provided with said flanges and in engagement with a surface of said body portion, one of the fingers of each pair being shorter in length than the other, said shorter fingers being in direct supporting engagement with said end closure disk while said other fingers extend inwardly of the end of said container member interconnecting said band with the innermost ends of said shorter fingers in angular bracing relation therewith, said band being in engagement with the outer surface of said body portion and being movable relative thereto toward and away from the opposite end of said container member, the movement of said band toward said opposite end being limited by abutment means carried by said body portion, said abutment means being in the form of spaced projections coplanar with said body portion and positioned to abut said other fingers at least adjacent their points of interconnection with said band to maintain their bracing angular relation with said shorter fingers by limiting movement of said band toward the opposite end of said container member, said abutment means being excised from the material of said shorter fingers adjacent the interconnection of the same with said body portion.

7. The end construction of claim 6 wherein side portions of adjacent flanges are interleaved in telescopic relation.

8. A container-forming blank having a first continuous score line extending across the same inwardly of a margin thereof, a second score line extending across said blank inwardly of said first score line and being interrupted by a plurality of spaced excised portions having their axes of greatest dimension at substantially right angles to said second score line which intersects said portions near the centers of the same, and a further score line extending across said blank inwardly of said second score line, said excised portions being substantially S-shaped.

9. A cover member for a cylindrical container comprising a plurality of inwardly extending flanges, and a closure disk-like member engaged by said flanges, each of said flanges being formed from a pair of interconnected fingers one of which is connected to the body portion of said cover member and the other of which is connected to a continuous marginal band extending inwardly from an end of said body portion and in engagement with a surface thereof, one of the fingers of each pair being shorter in length than the other, said shorter fingers being connected with said body portion and the other fingers being connected with said band, said band being in engagement with the outer surface of said body portion and being movable relative thereto toward and away from the opposite end of said body portion, the movement of said band toward said opposite end being limited by abutment means carried by said body portion, said abutment means being in the form of spaced projections coplanar with said body portion and positioned to abut said other fingers at their points of interconnection with said band to maintain their bracing angular relation with said shorter fingers by limiting movement of said band toward the opposite end of said body portion.

10. A cover member for a cylindrical container comprising a plurality of inwardly extending flanges, and a closure disk-like member engaged by said flanges, each of said flanges being formed from a pair of interconnected fingers one of which is connected to the body portion of said cover member and the other of which is connected to a continuous marginal band extending inwardly from an end of said body portion and in engagement with a surface thereof, one of the fingers of each pair being shorter in length than the other, said shorter fingers being connected with said body portion and the other fingers being connected with said band, side margins of adjacent flanges being interleaved in telescopic relation, said band being in engagement with the outer surface of said body portion and being movable relative thereto toward and away from the opposite end of said body portion, the movement of said band toward said opposite end being limited by abutment means carried by said body portion, said abutment means being in the form of spaced projections coplanar with said body portion and positioned to abut said other fingers at their points of interconnection with said band to maintain their bracing angular relation with said shorter fingers by limiting movement of said band toward the opposite end of said body portion.

11. A cylindrical container formed from paperboard and including a body portion, end closure supporting construction and end closure, said body portion being circumferentially subdivided into a plurality of foldable sec-

tions by longitudinally extending scores, said end closure supporting construction including a plurality of radially inwardly directed flanges foldably attached to each of said sections, each of said flanges being formed from paired top and bottom fingers foldably interconnected along their innermost margins, the top fingers of said flanges being foldably connected at their base to edge margins of said sections and the bottom fingers of said flanges being foldably connected at their base to a cylindrical band which is slidably received about the outer surface of said body portion, said bottom fingers being of greater length than said top fingers to place their base connections with said band axially and radially outwardly of the base connections of said top fingers thus placing said bottom fingers in inclined bracing relation with said top fingers, said flanges being dimensioned for side-by-side positioning and extending radially inwardly to define an annular rim on which the peripheral marginal portion of said end closure is received in supported relation.

12. A blank for forming a collapsible container, said blank comprising a body portion panel having integrally formed therewith along at least one of its margins a plurality of finger panels, each of said finger panels having integrally formed therewith along its margin spaced from said body portion panel a second finger panel, and a continuous margin strip integrally formed with each of said second finger panels along margins spaced from said first finger panels, each of said panels and said strip being foldable relative to one another along the lines of connection of the same, opposite edges of a plurality of the connected finger panels each being recessed along one edge and formed with a tongue along an opposite edge to cooperate with adjacent edges of adjacent finger panels in overlapping relation upon the forming of a container from said blank, said connected finger panels being of sufficient width to provide for interleaving of tongue forming edges with adjacent recess forming edges upon the forming of a container.

13. A cover member for a cylindrical container comprising a plurality of radially inwardly extending flanges, and a closure disk-like member engaged by said flanges, each of said flanges being formed from a pair of interconnected fingers one of which is connected to the body portion of said cover member and the other of which is connected to a continuous marginal band extending inwardly from an end of said body portion and in engagement with a surface thereof, one of the fingers of each pair being shorter in length than the other, said shorter fingers being connected with said body portion and the other fingers being connected with said band, said band being in engagement with the outer surface of said body portion and being movable relative thereto toward and away from the opposite end of said body portion, the movement of said band toward said opposite end being limited by abutment means carried by said body portion to maintain the other finger of each flange in angular bracing relation with the shorter finger interconnected therewith.

14. A cylindrical container member formed from paperboard and including a body portion, end closure supporting construction and end closure, said body portion being circumferentially subdivided into a plurality of foldable sections by longitudinally extending scores, said end closure supporting construction including a plurality of radially inwardly directed flanges each foldably attached to one of said sections, each of said flanges being formed from paired inner and outer fingers foldably interconnected along their radially innermost margins, the inner fingers of said flanges being foldably connected at their radially outermost margins to edge margins of said sections and the outer fingers of said flanges being foldably connected at their radially outermost margins to a cylindrical band which is slideably received about the outer surface of said body portion, said outer fingers being of greater radially inwardly directed length than said inner fingers to place their radially outermost margin connections with said band axially and radially outwardly of the radially outermost margin connections of said inner fingers thus placing said outer fingers in inclined bracing relation with said inner fingers, said flanges being laterally dimensioned of side-by-side positioning and extending radially inwardly to define an annular rim on which the peripheral marginal portion of said end closure is received in supported relation within said body portion.

15. The container of claim 14 wherein the side portions of adjacent flanges are interleaved in telescopic relation.

16. An end construction of a cylindrical container member comprising a plurality of radially inwardly extending flanges, and an end closure disk supported by said flanges, each of said flanges being formed from a pair of interconnected fingers one of which is connected to the body portion of said container member and the other of which is connected to a continuous marginal band extending inwardly from the end of said container member provided with said flanges and in sliding engagement with a surface of said body portion, one series of similar fingers of said flanges being in engagement with said closure disk, the other series of similar fingers of said flanges being in angular bracing relation with the fingers of said one series, and finger abutment means excised from the material of said container member and in abutment with the fingers of said other series to limit the extent to which said band is slideable along the surface of said body portion to maintain the other of said series of fingers in angular bracing relation.

17. An end construction of a cylindrical container member comprising a plurality of radially inwardly extending flanges, and an end closure disk supported by said flanges, each of said flanges being formed from a pair of interconnected fingers one of which is connected to the body portion of said container member and the other of which is connected to a continuous marginal band extending inwardly from the end of said container member provided with said flanges and in sliding engagement with a surface of said body portion, one series of similar fingers of said flanges being in engagement with said closure disk, the other series of similar fingers of said flanges being in angular bracing relation with the fingers of said one series, and marginal band abutment means forming a part of said container member and in abutment with the free edge of said marginal band to limit the extent to which said band is slideable along the surface of said body portion in a direction inwardly of the end of said container member and to maintain the other of said series of fingers in angular bracing relation.

18. An end construction of a cylindrical container member comprising a plurality of radially inwardly extending flanges, and an end closure disk supported by said flanges, each of said flanges being formed from a pair of interconnected fingers one of which is connected to the body portion of said container member and the other of which is connected to a continuous marginal band extending inwardly from the end of said container member provided with said flanges and in sliding engagement with a surface of said body portion toward and away from the opposite end of said container member, one of the fingers of each pair being shorter in length than the other finger, the movement of said band toward said opposite end being limited by abutment means carried by said body portion to maintain the other finger of each flange in angular bracing relation with the shorter finger interconnected therewith.

19. A blank for forming a collapsible container, said blank comprising a body portion panel longitudinally subdivided into a plurality of foldable sections by longitudinally extending score lines, each of said sections along an end margin having integrally formed therewith a relatively foldable finger panel which is transversely scored for folding upon itself, and a continuous margin strip integrally formed with each of said finger panels along end margins

spaced from finger panel connection with said sections, one longitudinal side margin of each finger panel being V-shaped and projecting toward the adjacent side margin of an adjacent finger panel and transversely beyond the adjacent longitudinal score line defining the section to which said finger panel is connected to be interleaved in its folded condition with the folded adjacent finger panel upon erection of said container.

20. A blank for forming a collapsible container, said blank comprising a body portion panel longitudinally subdivided into a plurality of foldable sections by longitudinally extending score lines, each of said sections along an end margin having integrally formed therewith a relatively foldable finger panel which is transversely scored for folding upon itself, and a continuous margin strip integrally formed with each of said finger panels along end margins spaced from finger panel connection with said sections, one longitudinal side margin of each finger panel being V-shaped and projecting toward the adjacent side margin of an adjacent finger panel and transversely beyond the adjacent longitudinal score line defining the section to which said finger panel is connected to be interleaved in its folded condition with the folded adjacent finger panel upon erection of said container, the opposite longitudinal side margin of each finger panel being recessed to accommodate interleaving between adjacent finger panels during folding of said blank to form a cylindrical container.

**References Cited** in the file of this patent

UNITED STATES PATENTS

| | | |
|---|---|---|
| 2,009,505 | Leopold | July 30, 1935 |
| 2,160,488 | Ringler | May 30, 1939 |
| 2,163,703 | Ringler | June 27, 1939 |
| 2,189,436 | Rosenfield | Feb. 6, 1940 |
| 2,395,558 | Lighter | Feb. 26, 1946 |
| 2,398,404 | Brooks | Apr. 16, 1946 |
| 2,419,765 | Crosley | Apr. 29, 1947 |
| 2,555,700 | O'Neil | June 5, 1951 |
| 2,577,588 | Paige | Dec. 4, 1951 |

FOREIGN PATENTS

| | | |
|---|---|---|
| 64,093 | Denmark | Oct. 29, 1945 |