July 12, 1960 M. I. WILLIAMSON 2,944,718

MULTICELLULAR FOLDING BOXES

Filed July 19, 1957 4 Sheets-Sheet 1

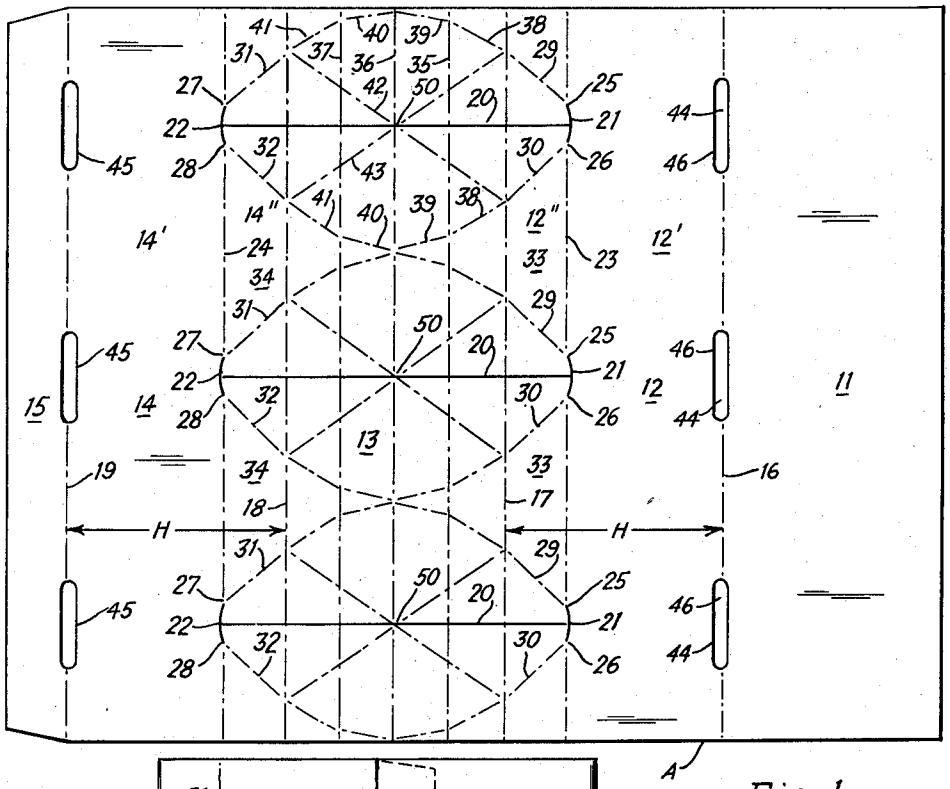


Fig. 1

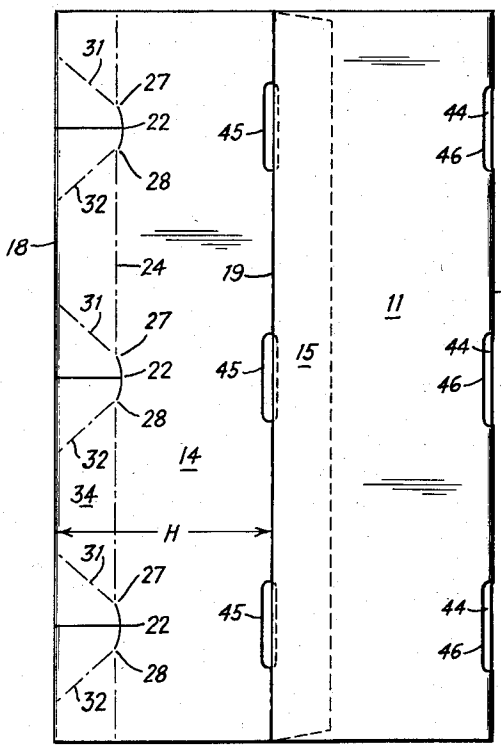


Fig. 2

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MULTICELLULAR FOLDING BOXES

Filed July 19, 1957 4 Sheets-Sheet 2

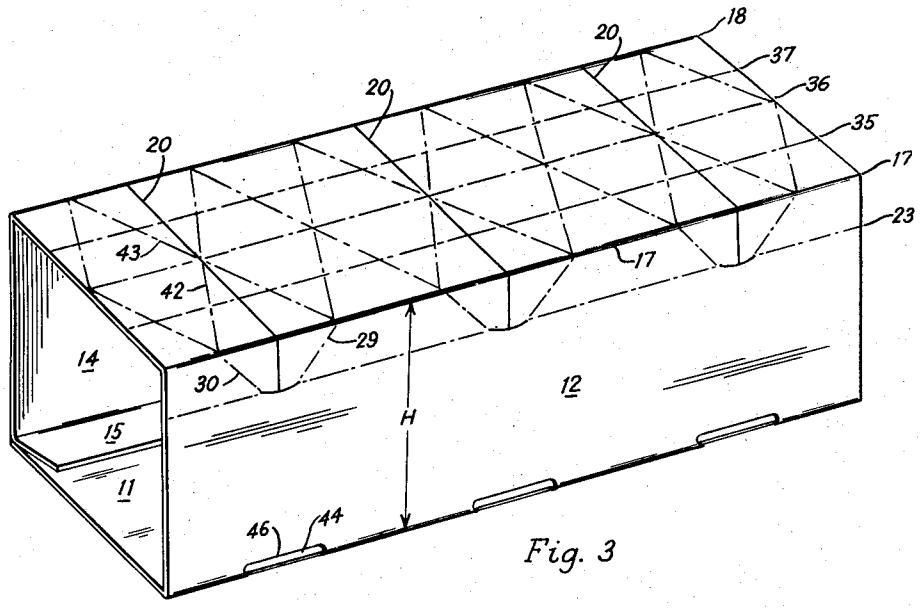


Fig. 3

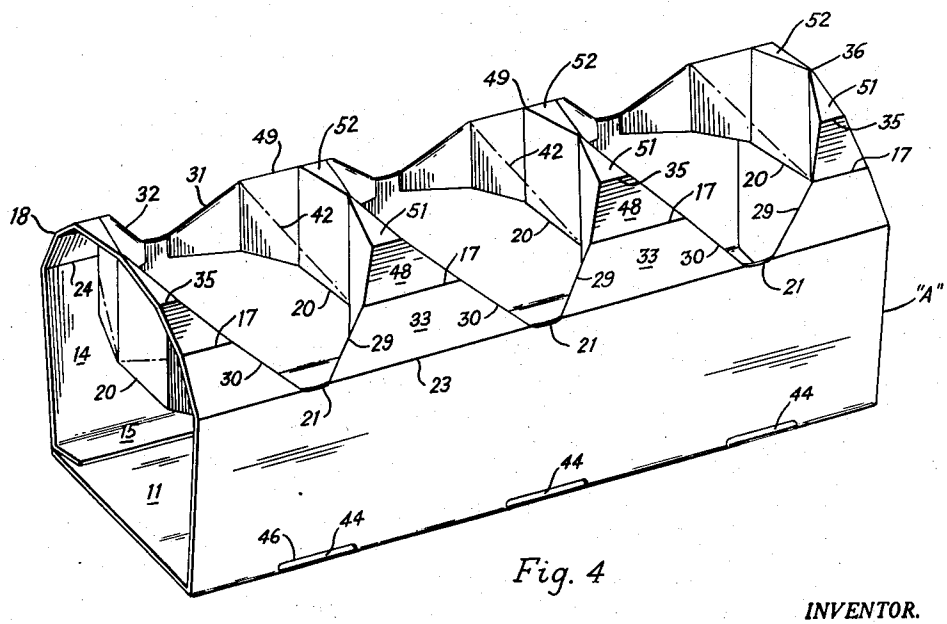


Fig. 4

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MULTICELLULAR FOLDING BOXES

Filed July 19, 1957 4 Sheets-Sheet 3

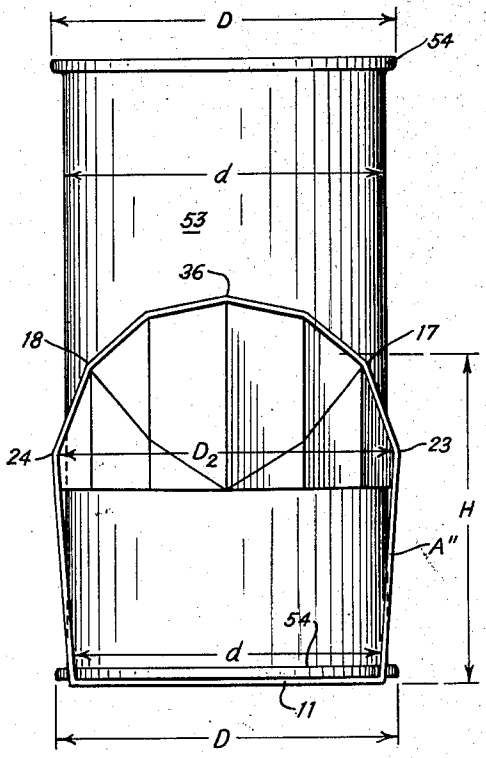


Fig. 5

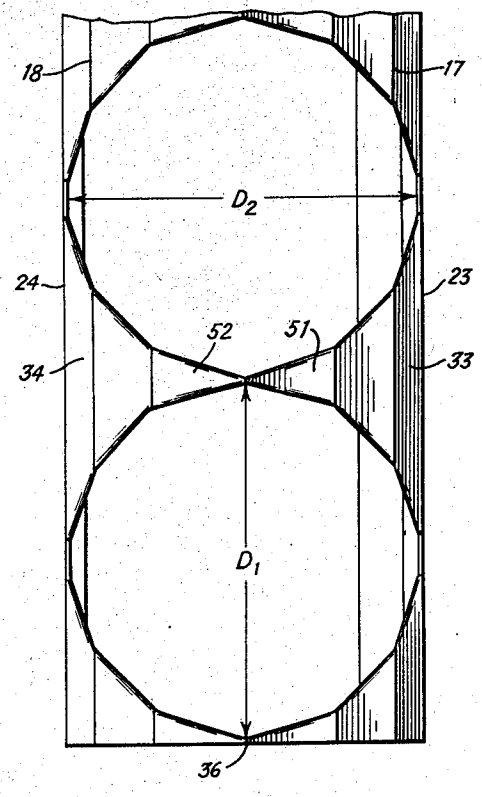


Fig. 6

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MULTICELLULAR FOLDING BOXES

Filed July 19, 1957 4 Sheets-Sheet 4

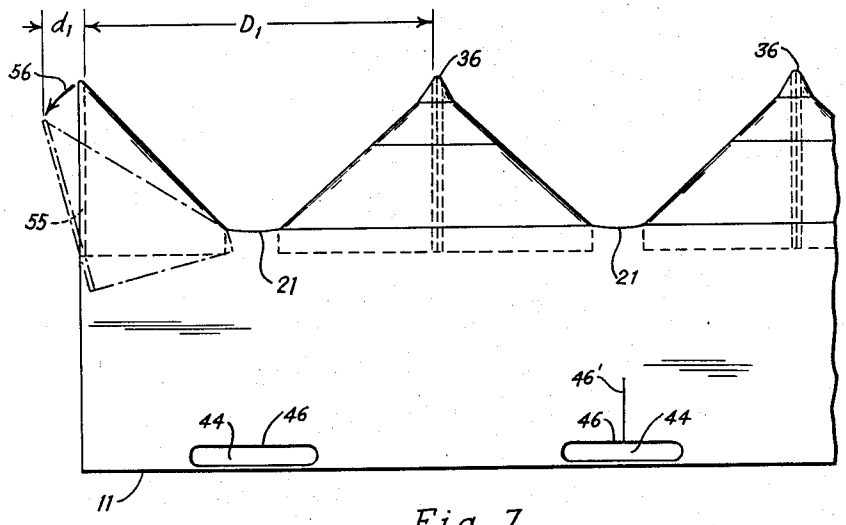


Fig. 7

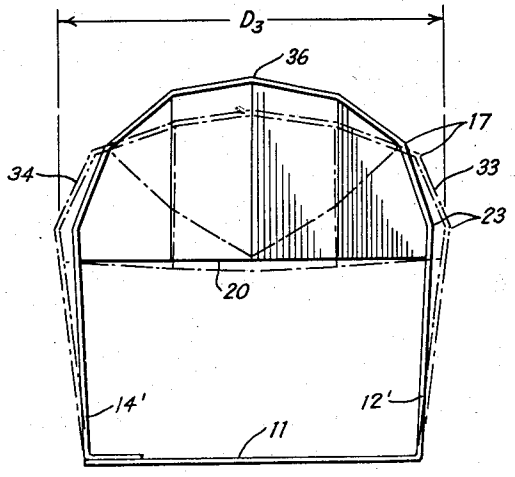


Fig. 8

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United States Patent Office

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MULTICELLULAR FOLDING BOXES

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Filed July 19, 1957, Ser. No. 672,907

7 Claims. (Cl. 229—28)

This invention relates to improvements in the construction of multicellular folding boxes used for the packaging as a single sales unit of plurality of articles, such as cans, bottles, jars, light bulbs, and the like.

Basically, a multicellular folding box comprises a bottom, upright side walls and a top or cell panel in which a plurality of article receiving cells are formed. The individual cells are separated from one another by transverse web structures, and the articles of merchandise are seated in the cells in such a way that the side walls engage the articles at two opposite sides, whereas the webs engage the articles at right angles thereto.

In the simplest form of cell, the square cell, there are only four points, lines, or areas of contact. It has been proposed to increase the engagement contacts by making the cells polygonal, for example, by making them hexagonal. This is accomplished by appropriate configuration of the web portions of the box blank. The web portions of the box are articulated to the side walls and comprise, in most instances, substantially triangular panel portions articulated to the side walls along their bases. The cell wall forming portions of the webs, in turn, are articulated to the sides of the triangle.

Webs articulated to the side walls along triangular portions possess considerable strength, but present problems which arise from the fact that in the formation of the cells the triangles move from a horizontal to a slanted position, thereby drawing the side walls together and narrowing the width of the cells. The narrowing of the cells makes it difficult to insert flat-ended articles, such as cans or bottles into the box. In distinction, the distance from web to web does not change during assembly of the box. The result is a tight fit between the side walls and a loose fit between the webs. This is undesirable, since the individual articles of merchandise are not securely held, rattle and are free to tilt.

In order to overcome the narrowing of the cells during assembly of the box, it has been proposed to make the top panel of the box wider than the bottom panel, in anticipation of the narrowing of the cells during assembly. This proposal however leads to other difficulties. While the formation of cells of equal longitudinal and lateral dimensions is attained, the box blank becomes irregular in that it comprises a wide top panel and a narrow bottom panel.

It is customary to furnish the boxes to the trade as preglued tubular blanks which are shipped and stored in flat collapsed condition. A blank comprising a wide top panel and a narrow bottom panel cannot be collapsed without a special collapsing crease. The collapsing crease is normally provided in the bottom wall a short distance from the bottom fold line.

The collapsing crease presents problems in the assembly of the box and contributes to an unsightly appearance. When the tubular blank is being squared the bottom panel should be flattened out at the collapsing crease, but resists such flattening out because of the stiffness of

the board. Mechanically it is difficult to flatten out the bottom panel because of the relatively narrow width of the panel portion between the collapsing crease and the proximate bottom fold line. As a result, a narrow strip of the bottom panel tends to remain at a slightly inclined position with respect to the remainder of the bottom panel, giving the box a somewhat unsightly appearance when viewed from the end, in that one side wall appears taller than the other.

In the packaging of glass jars and tin cans it is important to hold the receptacles tightly in the cells to prevent rattling. A tight fit is particularly important in boxes designed to grip the chime-end of a can by the bottom edge of the cell walls, thereby locking the cans in the box. It is obvious that a tight fit is critical in such a box. On the other hand, it is equally plain that in spite of the tightness of the fit it must be possible to insert the cans without difficulty. Also, the entire bottom edge of the cell walls which engages the can chimes must be equidistant from the bottom panel in order to provide a reliable locking edge. Prior designs, as far as I am aware, have failed to meet these requirements.

The present invention provides an improved construction of a multicellular box which may be assembled from a flat collapsed tubular blank, but requires no special collapsing crease in order to fold it flat. The invention provides a cell form which may be a perfect polygon, considering the set up box in plan view. In the cells round articles such as cans and jars are held snugly and securely because all the sides of the polygon are equidistant from the central axis of the cell in the set up box, even though they are not equidistant in the flat blank. The improved box in its preferred form incorporates trapezoidal side wall portions which, somewhat similar to the construction of a mansard roof, assume an inclined position with respect to the side wall in the set up box. Substantially triangular cell panel portions rise above the trapezoidal panel portions, and form an angle with regard thereto, as does the upper portion of a mansard roof with respect to the lower portion.

The various features, structural details and advantages of this invention will appear more fully from the detailed description which follows accompanied by drawings showing, for the purpose of illustration, preferred embodiments of the invention. The invention also resides in certain new and original features of construction and combination of elements hereinafter set forth and claimed. Although the characteristic features of this invention which are believed to be novel will be particularly pointed out in the claims appended hereto, the invention itself, its objects and advantages, and the manner in which it may be carried out, may be better understood by referring to the following description taken in connection with the accompanying drawings forming a part of it, in which:

Figure 1 is a plan view of a flat cut and scored blank from which a multicellular box incorporating the invention may be assembled, the outside blank surface facing the observer;

Figure 2 is a plan view of the blank of Figure 1 after a folding and gluing operation converting the flat blank into a flat collapsed tubular structure;

Figure 3 is a perspective view of the structure of Figure 2 after squaring;

Figure 4 is a perspective view of the squared tubular structure of Figure 3 after formation of the cellular structure;

Figure 5 is an end view of the cellular box of Figure 4 with tin cans inserted into the cells;

Figure 6 is a plan view of the cellular box of Figure 4, an end portion being broken away;

Figure 7 is a side elevation of the cellular box of Figure 4 illustrating the expansion of a cell mouth in a lengthwise direction; and

Figure 8 is an end elevation of the cellular box of Figure 4 illustrating the expansion of the cell mouth in a transverse direction.

In the following description and in the claims various details will be identified by specific names for convenience. The names, however, are intended to be generic in their application. Corresponding reference numerals refer to corresponding parts in the several figures of the drawings.

The drawings accompanying, and forming part of, this specification discloses certain specific details of the invention for the purpose of explanation of broader aspects of the invention, but it is understood that the details may be modified in various respects without departure from the principles of the invention and that the invention may be applied to other structures than the one shown.

The blank A of Figure 1 may be cut and scored in multiple from large rolls or sheets of foldable sheet material, such as paperboard, on automatic cutting and creasing machines. The blank A comprises a base panel **11**, a side wall **12**, a cell panel **13**, a further side wall **14** and a glue lap **15** articulated to one another along fold lines of which **16** may be termed a base fold line, **17** and **18** main fold lines and **19** a further base fold line. The several fold lines are parallel to one another and in the illustrated embodiment the side walls **12** and **14** are of equal height H.

Spaced cell cuts **20** extend across the cell panel **13** beyond the bordering main fold lines into the body of the side walls **12** and **14**. The cell cuts **20** terminate at side cuts **21** and **22** in the side walls **12** and **14**, respectively. Intermediate folding scores **23** and **24** divide the side walls into lower wall portions **12'**, **14'** and upper wall portions **12''**, **14''**. The intermediate folding scores are parallel to the main and base fold lines and determine the location of the side cuts **21** and **22** which extend between apex points **25**, **26** and **27**, **28**, respectively. The apex points may be considered the ends of the portions of the intermediate folding scores **23**, **24**, and also the ends of the side cuts **21**, **22**.

The side cuts **21**, **22**, may be straight, or they may be arcuate, bowed towards the base fold lines **16** and **19**.

Diagonal scores **29**, **30**, **31** and **32** extend from the apex points **25**, **26**, **27** and **28** towards the main fold lines **17** and **18**, the angle of the diagonal scores with respect to the intermediate folding score being 45 degrees.

The diagonal scores, together with the intermediate scores **23**, **24** and the main fold lines **17** and **18**, define major trapezoidal panel portions **33** and **34**. These panel portions are articulated to the lower side wall portions **12'** and **14'** along the intermediate folding scores **23** and **24** and may assume a slanted position with respect to the lower side wall portions.

The cell panel **13** comprises a plurality of lengthwise folding scores, three lengthwise scores **35**, **36** and **37** being shown. The number of these scores is optional. As will later be seen the number of folding scores determines the outline of the cell apertures in the completed box. For example, the cells form a 12-sided polygon if there are three lengthwise scores, a 10-sided polygon if there are two, an octagon if there is one. In the illustrated arrangement the score **36** extends centrally of the panel **13** midway between the main fold lines **17** and **18**.

The intersection of the central score **36** with the cuts **20** define central points **50** about which peripheral folding scores **38**, **39**, **40** and **41** extend. These peripheral scores define the mouths of the cell openings in the assembled multicellular box. The angles at which the peripheral scores extend are optional, although it is preferred to direct scores **38** and **41** at angles of 60 degrees and scores **39** and **40** at angles of 75 degrees with respect to the main fold lines **17** and **18** in an arrangement in which the lengthwise scores **35**, **36** and **37** are evenly spaced.

Diagonal auxiliary folding scores **42** and **43** may be provided to facilitate the formation of the cell walls.

Chime apertures **44** and **45** may be provided in the side walls **12** and **14** immediately above the base fold lines **16** and **19**. The apertures have upper edges **46** and **47** spaced from the base fold lines **16** and **19**, a distance slightly in excess of the axial dimension, i.e., height, of the can-chime which in conventional cans measures approximately one-eighth of an inch.

The blank of Figure 1 may be converted into box form as follows:

Adhesive is first applied to the glue lap **15** and the blank is then folded about the fold lines **18** and **16** to bring the marginal portion of the base panel **11** into adhesive engagement with the glue lap.

A collapsed flat tubular structure A' results. The tubular blank A' may be shipped and stored in flat condition and may quickly be converted into multicellular box form by a few simple folding operations. This is done as follows:

The blank A' is first squared, as shown in Figure 3. Next, the portions of the cell panel **13** adjacent the cell cuts **20** are folded about their respective diagonal fold lines **29**, **30**, **31** and **32** into a position substantially vertical with respect to the base panel **11**. The resulting multicellular structure A'' is shown in Figure 4.

In the completed multicellular box the trapezoidal panel portions **33** and **34** (of which **34** are not visible in Figure 4) are inclined with respect to the side walls **12** and **14**. Above the major trapezoids **33** and **34** minor trapezoids **48** and **49** rise at an angle with respect to the major trapezoids. Triangular panel portions **51** and **52** rise above the minor trapezoids at an angle to the latter. The apexes of the triangles **51** and **52** are joint and lie on the central score **36**.

The diagonal scores **42** and **43** facilitate the down folding of the portions of the cell panel **13** which become upright cell walls in the finished structure. The edges formed by the cuts **20** become the lower edges of the cell walls. These lower edges are equidistant from the base panel **11** and provide an auxiliary edge or safety catch for chime-end cans inserted into the multicellular structure.

Referring to Figure 5, it may be assumed that chime-end cans **53** are to be packaged in the multicellular box A''. The cans have a body diameter *d* and a chime-end diameter D. A snug fitting box structure is preferably so constructed that the width of the base panel **11** is substantially equal to the body diameter *d* in which case the can-chimes **54** protrude through the respective apertures **44** in the side walls and are locked by the upper edges **46** of the apertures (see Figure 4). The dimension *d*, the width of the base panel, also determines the width of the cell panel **13**. In order to be collapsible the width of the cell panel must also be *d*, assuming equal height H of the side walls.

A glance at Figures 4 and 5 shows that the formation of the cell structure automatically results in the reduction of the distance between the main fold lines **17** and **18** to less than *d*.

The use of the folding box A'' involves two mechanical requirements which at first glance appear contradictory or irreconcilable. In order to hold cans securely, without rattling, the can bodies should be held between cell walls spaced apart a distance equal to the diameter *d* of the can body. On the other hand, it must be possible to insert the larger chime-end of the can having a diameter of D into the cell mouth. D exceeds *d* by about one-eighth of an inch. Paperboard itself is not elastic to any appreciable degree and cannot be expanded for the purpose of inserting a can and then be contracted after the can is inserted. The invention however provides a paperboard structure so constructed that its articulated components may be elastically distended and contracted.

The illustrated multicellular structure permits the large can end to be inserted and the can diameter to be securely held by reason of a unique mechanical interrelation of the various cell-forming panel portions which permits distending of the cells in a direction lengthwise of the box as well as in a direction normal thereto. The distensibility of the cellular structure is illustrated in Figures 7 and 8.

A can inserted from above first engages the peak portions of the cell structure below the peak **36** proper (Figure 4) and above the fold lines **23** and **24**. The endmost cell having normally a diameter of D_1 can be enlarged by an amount d_1 by tilting the endmost cell wall **55** outwardly in the direction of the arrow **56**. This tilt involves a substantially arcuate motion about the apex points **25, 27**. A can having a diameter larger than D_1 but smaller than D_1 plus d_1 can now readily be inserted into the cell mouth to a level below the peaks **36**. An intermediate cell may also be distended, even though less than the amount d_1, by urging the peaks **36** apart. The insertion of the cans is further facilitated by the fact that the distance d_1 is measured between the fold lines which form the corners of the polygon, which distance is greater than the distance between opposite sides of the polygon.

As the can moves down into the cell mouth, it must next clear the cut edges **21** and **22**. This is accomplished by temporarily increasing the slope of the trapezoidal panels **33** and **34** with respect to the lower side wall portions **12'** and **14'**. This action is illustrated in Figure 4 and results in an enlargement of the normal distance between the edges to a distance D_3 sufficient to permit the can-chime to pass.

As soon as the can-chime clears the bottom edge **20** of the cell walls the box structure by reason of the inherent resiliency of the paperboard returns to a normal position in which the diameter between the edges **33** and **34** is reduced to D_2 which is only slightly more than the diameter d of the can body. D_2 is slightly greater than d by reason of the fact that one additional thickness of board lies on the inside of the side walls **12** and **14** after folding of the web structure about the diagonal fold lines **29, 30, 31** and **32** (Figure 4). The contraction of the cell opening is aided by the righting of the endmost cell webs from the tilted funnel-forming position into upright position with respect to the base panel **11**. Righting of the cell walls automatically causes opposite apex points **25, 27** and **26, 28** to be drawn together. This reduces the slope of the trapezoidal panels **33** and **34** and causes the side walls **12** and **14** to be drawn together until the can body is snugly held about its diameter d.

During the final phase of the insertion of the cans into the box structure the side walls are temporarily bulged out immediately above the chime apertures **44** and **45** until the can-chimes snap into the apertures.

The inserted cans are firmly held by the edges **46**. A supplementary or safety catch is provided by the bottom edges **20** of the webs which grasp the chimes if a can should accidentally slip out of engagement with the edges **46**.

The locking of the can-chimes in the apertures **44** is accomplished without the gluing or stapling operation required in conventional chime locking folding boxes employing apertures of the type shown at **44**.

A comparison of Figures 1 and 6 shows that the fold lines which form an elongated polygon about the central points **50** in the flat bank form regular polygons in the assembled multicellular box. Symmetry of the polygonal structure is desirable as it provides for equal spacing of opposite sides of the polygon each of which engages the side of the can with its surface, or the can-chime with its bottom edge **20** in the event the can is accidentally withdrawn from the chime engaging apertures **34** in which event the cell edges **20** become operative as a safety lock.

The distensibility of the box structure permits articles of different diameters to be carried in the same box, as may be desirable in the assembly of combination packages. Referring to Figure 7 it may be assumed that a slightly larger article is to be inserted into the right cell than into the left, the difference in size being sufficient to present a problem in fitting the chime end into the locking aperture **44**. This problem is readily overcome by the provision of a supplemental slit **46'** permitting the wall to flare out slightly at the slit when the article is pressed down into seating position.

What is claimed is:

1. A cellular folding box structure for the packaging of articles of substantially cylindrical cross-section, such as cans, bottles, jars, light bulbs and the like, the structure comprising, a pair of opposite side walls; a base panel between, and articulated to said side walls along parallel base fold lines; a cell panel between, and articulated to said side walls along two parallel main fold lines, each side wall having an intermediate folding score extending across it parallel to, and between, the respective base and main fold lines, said cell panel having a central longitudinal folding score extending across it equidistant from, and parallel to, said main fold lines, said cell panel having spaced substantially parallel cell cuts in it extending at right angles to said longitudinal folding score across and beyond said main fold lines into the body of said side walls, at least as far as said intermediate folding scores, said cell panel further comprising peripheral folding scores forming polygons about central points defined by the intersections of said cell cuts with said central folding score, said polygons including sides extending at an angle of 45 degrees with respect to said intermediate folding score from said intermediate folding score, said last named sides forming two opposite slanted sides of a trapezoidal panel of which the intermediate folding score and the main fold line form the two other parallel sides, each trapezoidal panel being inclined with respect to the side wall to which it is articulated, further sides of the polygon defining substantially triangular cell panel portions having the top of the trapezoid as a base, being inclined with respect to the planes of the trapezoidal panels and having an apex at said central folding score, the cell panel portion between each cell cut and the respective portion of the polygon subtended by said cut being folded into substantially normal position with respect to the base panel, thereby forming a polygonal cell wall whose edge is substantially equidistant from said base panel at all points.

2. A cellular folding box structure for the packaging of cylindrical chime-end cans, as set forth in claim 1, in which the edge of the cell wall is spaced from the main panel a distance substantially equal to the thickness of the can chime and in which the said polygons are elongated, having a short axis, represented by said central longitudinal folding score, the short axis being equal to the can diameter, and having a long axis represented by the respective cell cut, the long axis exceeding the length of the short axis by double the distance between the main fold lines and the intermediate folding scores.

3. A cellular folding box structure for the packaging of articles of substantially cylindrical cross-section, such as cans, bottles, jars, light bulbs, and the like the structure comprising, a pair of opposite side walls; a base panel between, and articulated to said side walls along parallel base fold lines; a cell panel between, and articulated to said side walls along two parallel main fold lines, each side wall having an intermediate folding score extending across it parallel to, and between, the respective base and main fold lines, said cell panel having a central longitudinal folding score extending across it equidistant from, and parallel to, said main fold lines, said cell panel hav-

ing spaced susbtantially parallel cell cuts in it extending at right angles to said longitudinal folding score across and beyond said main fold lines into the body of said side walls, at least as far as said intermediate folding scores, said cell panel further comprising peripheral folding scores forming twelve-sided polygons about central points defined by the intersections of said cuts with said central folding score, said twelve-sided polygons including first pairs of sides extending from said intermediate folding score at angles of 45 degrees, said first sides forming two opposite slanted sides of a primary trapezoidal panel of which the intermediate folding score and the main fold line form the two other parallel sides, each trapezoidal panel being inclined with respect to the side wall to which it is articulated, said polygon further comprising second pairs of sides extending from the ends of the first pair of sides at angles of substantially 60 degrees with respect to said main fold lines, said second pair defining a secondary trapezoidal panel between them, and third pairs of sides extending from the ends of said second pairs of sides to an apex point on said central folding score, said third pairs of sides defining substantially triangular cell panel portions having the top of the secondary trapezoidal panel as a base, and being inclined with respect to the planes of the trapezoidal panels, the cell panel portion between each cell cut and the respective portion of the polygon subtended by said cell cut being folded into substantially normal position with respect to the base panel, thereby forming a twelve-sided cell wall whose edge is substantially equidistant from said base panel at all points.

4. A cellular folding box structure for the packaging of articles of substantially cylindrical cross-section, such as cans, bottles, jars, light bulbs, and the like the structure comprising, a pair of opposite side walls; a base panel between, and articulated to said side walls along parallel base fold lines; a cell panel between, and articulated to said side walls along two parallel main fold lines, each side wall having an intermediate folding score extending across it parallel to, and between, the respective base and cell fold lines, said main panel having a central longitudinal folding score extending across it equidistant from, and parallel to, said main fold lines, said cell panel having spaced substantially parallel cell cuts in it extending at right angles to said longitudinal folding score across and beyond said main fold lines into the body of said side walls, at least as far as said intermediate folding scores, said cell panel further comprising peripheral folding scores forming twelve-sided polygons about central points defined by the intersections of said cuts with said central folding score, said twelve-sided polygons including first pairs of sides extending from said intermediate folding score at angles of 45 degrees, said first sides forming two opposite slanted sides of a major trapezoidal panel of which the intermediate folding score and the main fold line form the other two parallel sides, said polygon further comprising second pairs of sides extending from the ends of the first pairs of sides at an angle of substantially 60 degrees with respect to said main fold lines, said second pairs of sides forming two opposite slanted sides of a minor trapezoidal panel above said major trapezoidal panel, said minor trapezoidal panel being bounded by said second pairs of sides, said main fold line and a top score parallel to the main fold line, said top score connecting the ends of the said second pairs of sides, said polygon further comprising third pairs of sides extending from the ends of the second pairs of sides at angles of substantially 75 degrees with respect to said main fold line to an apex point on the central longitudinal folding score, said third pairs of sides and said top score defining triangular cell panel portions having the top of the minor trapezoidal panel as a base, the plane of the major trapezoidal panels being inclined with respect to the respective side walls, the plane of said minor trapezoidal panels being inclined with respect to the plane of the respective major trapezoidal panel, and said triangular panel portions being inclined with respect to the planes of the minor trapezoidal panels, the cell panel portion between each cell cut and the respective portion of the polygon subtended by said cell cut being folded into substantially normal position with respect to the base panel, thereby forming a twelve-sided cell wall whose edge is substantially equidistant from said base panel at all points.

5. A cellular folding box structure for the packaging of articles of substantially cylindrical cross-section, such as cans, bottles, jars, light bulbs and the like, the structure comprising, a pair of opposite side walls; a base panel between, and articulated to said side walls along parallel base fold lines; a cell panel between, and articulated to said side walls along two parallel main fold lines, each side wall having an intermediate folding score extending across it parallel to, and between, the respective base and main fold lines, said cell panel having at least one longitudinal folding score parallel to and symmetrical with regard to said main fold lines, said cell panel having spaced substantially parallel cell cuts in it extending at right angles to said main fold lines across and beyond the main fold lines into the body of the side walls, at least as far as said intermediate folding scores, said cell panel further comprising peripheral folding scores forming polygons about central points on said cuts midway between said main fold lines, said polygons including sides extending from said intermediate folding scores at angles of 45 degrees, said last named sides forming two opposite slanted sides of a trapezoidal panel of which the intermediate folding score and the main fold line form the two other parallel sides, each trapezoidal panel being inclined with respect to the side wall to which it is articulated, further sides of the polygon defining substantially triangular cell panel portions having the top of the trapezoidal panel as a base and being inclined with respect to the plane of the trapezoidal panel, the cell panel portion between each cell cut and the respective portion of the polygon subtended by said cell cut being folded into substantially normal position with respect to the base panel, thereby forming a polygonal cell wall whose edge is substantially equidistant from said base panel at all points.

6. A cellular folding box structure for the packaging of cylindrical chime-end cans, the structure comprising, a pair of opposite side walls; a base panel between, and articulated to said side walls along parallel base fold lines; a cell panel between, and articulated to said side walls along two parallel main fold lines, each side wall having an intermediate folding score extending across it parallel to, and between, the respective base and main fold lines, said cell panel having at least one longitudinal folding score parallel to and symmetrical with regard to said main fold lines, said cell panel having spaced substantially parallel cell cuts in it extending at right angles to said main fold lines across and beyond the main fold lines into the body of the side walls, at least as far as said intermediate folding scores, said cell panel further comprising peripheral folding scores forming polygons about central points on said cuts midway between said main fold lines, said polygons being elongated, having a long axis represented by the respective cell cut, and a short axis, shorter than said long axis, said short axis extending midway between the ends of the respective cell cuts normal to the cuts, said short axis being substantially equal in length to the can diameter, said polygons including sides extending from said intermediate folding scores at angles of 45 degrees, said last named sides forming two opposite slanted sides of a trapezoidal panel of which the intermediate folding score and the main fold line form the two other parallel sides, each trapezoidal panel being inclined with respect to the side wall to which it is articulated, fur-

ther sides of the polygon defining substantially triangular cell panel portions having the top of the trapezoid as a base and being inclined with respect to the plane of the trapezoidal panel, the cell panel portion between each cell cut and the respective portion of the polygon subtended by said cell cut being folded into substantially normal position with respect to the base panel, thereby forming a polygonal cell wall, the edge of the cell wall being substantially equidistant from said base panel at all points and spaced from said base panel by a space substantially equal to the thickness of the can chime.

7. A cellular folding box structure for the packaging of articles of substantially cylindrical cross-section, such as cans, bottles, jars, light bulbs and the like, the structure comprising, a pair of opposite side walls; a base panel between, and articulated to said side walls along parallel base fold lines; a cell panel between, and articulated to said side walls along two parallel main fold lines, each side wall having an intermediate folding score extending across it parallel to, and between, the respective base and main fold lines, said cell panel having at least one longitudinal folding score parallel to and symmetrical with regard to said main fold lines, said cell panel having spaced substantially parallel cell cuts in it extending at right angles to said main fold lines across and beyond the main fold lines into the body of the side walls, at least as far as said intermediate folding scores, said cell panel further comprising peripheral folding scores forming polygons about central points on said cuts midway between said main fold lines, said polygons including sides extending from said intermediate folding scores at angles of 45 degrees, said last named sides forming two opposite slanted sides of a trapezoidal panel of which the intermediate folding score and the main fold line form the two other parallel sides, said trapezoidal panel being inclined with respect to the side wall to which it is articulated, further sides of the polygon defining substantially triangular cell panel portions having the top of the trapezoidal panel as a base and being inclined with respect to the plane of the trapezoidal panel, the cell panel portion between each cell cut and the respective portion of the polygon subtended by said cell cut being folded into substantially normal position with respect to the base panel, thereby forming a polygonal cell wall whose edge is substantially equidistant from said base panel at all points, said side walls having can chime engaging apertures in them immediately above the base panel and in line with said cells.

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UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 2,944,718 July 12, 1960

Marshall I. Williamson

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 1, line 17, before "plurality" insert -- a --; column 7, line 34, after "like" insert a comma; column 7, line 41, for "cell" read -- main --; same line 41, for "main" read -- cell --.

Signed and sealed this 25th day of April 1961.

(SEAL)
Attest:

ERNEST W. SWIDER
Attesting Officer

DAVID L. LADD
Commissioner of Patents