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FOLDING BOX

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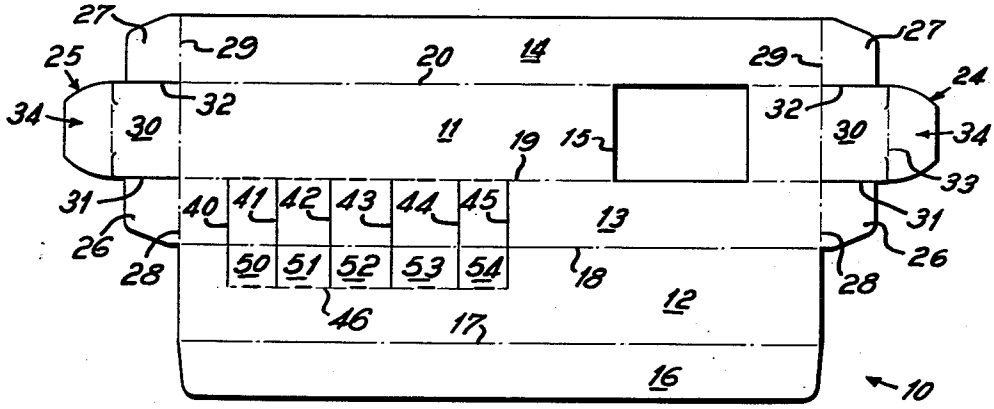


Fig. 1

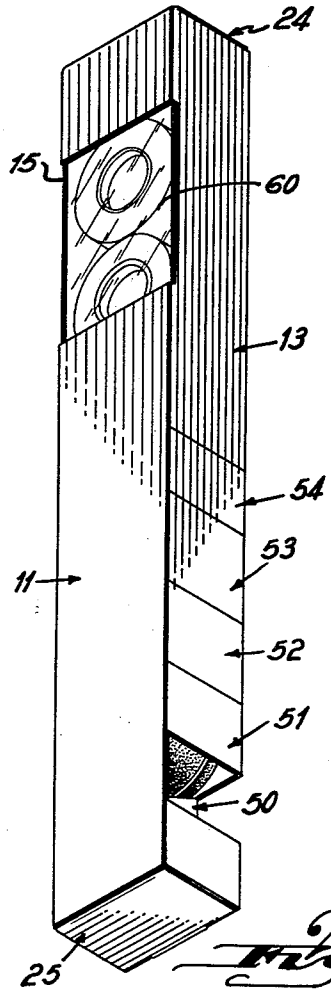


Fig. 2

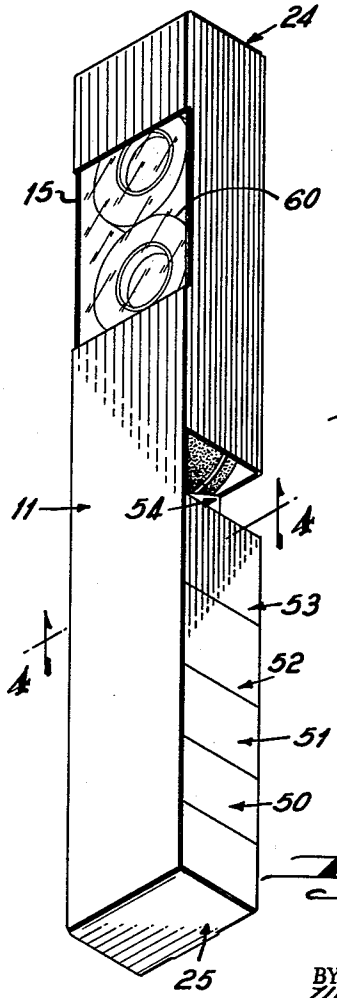


Fig. 3

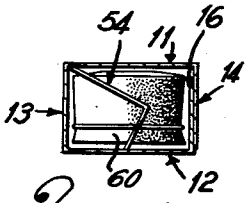


Fig. 4

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FOLDING BOX

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This invention relates to a folding box construction. More specifically, the invention relates to a folding box which is of variable or adjustable length and which is adapted to contain various numbers of small articles and/or articles of different lengths.

A great many different kinds of small articles of manufacture are sold in quantities or lots of several units per container. It is common practice to package items that are sold in small lots in an elongated container in which the articles are arranged in end to end or stacked relation, provided their shape and other factors render them suitable for such packaging. A typical example of the many kinds of goods packaged in this manner is valve seals, which are small, disk-like articles usually between about ½ and 1 inch in diameter and ½ to ⅝ inch in thickness. Valve seals are sold in lots of 4, 6, or 8, and as one example have in the past been packed in an elongated plastic tube having a length about equal to the overall length of the stack of seals of the maximum or largest size and number of seals which are to be contained in the tube.

Small articles sold in this manner often come in several different sizes, and heretofore similar articles of different sizes have necessarily been packaged either in containers of correspondingly different sizes or in a standard container sized to hold the maximum size or number of articles. For this reason it has been necessary either to produce several different sizes of containers for the full line of sizes which are produced, or to package the smaller quantities or sizes of articles loosely in oversize containers.

This invention is directed to a folding box construction for packaging small articles sold in a plurality of units per box, which is characterized in that its effective length can be adjusted, so that a single, standardized box construction can be used to package any of the different sizes or lengths in which an article is supplied, or which can be used to contain different numbers or lengths of articles in the different sizes. The box I have invented is provided with simple but effective means whereby its internal length—that is, the longitudinal dimension of the space in which the articles are contained—may readily be fixed at any of a number of different predetermined sizes corresponding to the different sizes of the articles to be packaged.

The present folding box is broadly of conventional overall construction having a bottom, a top, two sides, and folding end closures or tabs, and may have a window provided in one or more sides through which its contents are visible. The novelty of the box construction resides in structure defined by a plurality of parallel transverse cuts or slits which extend across one side and half way across an adjacent surface of the box in planes perpendicular to the longitudinal axis of the container. The surface defined between any pair of adjacent slits can be inverted or pushed into the interior of the container so as to comprise a stop the edge of which forms an abutment for limiting the longitudinal movement and position of articles within the container. The longitudinal positions of the cuts correspond to the various overall longitudinal dimensions of the different combinations of articles which the box is adapted to contain.

The invention can best be further described with reference to the drawings, in which:

FIGURE 1 is a plan view of a blank from which a box in accordance with the invention is assembled;

FIGURE 2 is a perspective view of a box assembled from the blank shown in FIGURE 1, and illustrates the box as adapted to contain articles of relatively large size, or a relative large number of articles;

FIGURE 3 is a perspective view similar to FIGURE 2 but shows the box as adapted to contain a lesser number of articles than the box of FIGURE 2, or articles of smaller size; and

FIGURE 4 is a cross-sectional view taken on line 4—4 of FIGURE 3.

The present container is most easily manufactured and assembled from an integral blank which is designated 10 in FIGURE 1, although it is of course contemplated that the box may be assembled from a plurality of sheet-like surfaces if desired. The blank 10 is punched or formed from sheet stock such as cylinder or fourdrinier board, and includes a top or front wall 11, a bottom or back wall 12, and side walls 13 and 14 which in the assembled container extend between and connect the front 11 and back 12. A window 15 is formed in the front surface 11 of the box, and is preferably backed with a suitable transparent sheet material such as cellophane. A glue tab 16 is formed along one side of bottom surface 12, and in the assembled container this tab 16 overlaps and is suitably secured to side 14 of the container. Parallel longitudinally extending fold or score lines 17, 18, 19, and 20 are provided between the tab 16, bottom 12, side 13, top 11, and side 14 by means of which the blank 10 can easily be folded in to assembled form. At the top and bottom ends of the container, which ends are designated as 24 and 25 respectively, generally conventional slit lock tab closures are provided. Specifically, the closure at the upper end 24 of the carton includes a pair of side tabs 26 and 27, which articulate with respect to sides 13 and 14 respectively along score lines 28 and 29. Another tab closure 30 is formed to articulate along the edge of the front surface 11, and is separated from the tabs 26 and 27 by cuts 31 and 32 respectively. The tab 30 has a flap 34 at its outer end which is foldable along a score line 33. The tabs at the other end 25 of the blank are similar to those at the end 24.

The blank 10 is provided with a plurality of parallel, transversely extending cuts, six of which are shown for purposes of illustration, although more or fewer cuts may be provided as desired. These cuts are designated by the numbers 40–45 in the drawing. In the blank illustrated, each of the cuts 40–45 extends at right angles to the score line 19, which demarcates the fold between the front 11 and the side 13, across side 13 to approximately the middle of bottom 12. The score line 18, which demarcates the fold between the side 13 and the bottom 12, extends across the portions of the blank 10 between the respective pairs of slits 40–45. A score or fold line 46 extends longitudinally in bottom surface 12 and connects the proximate ends of the slits 40–45. The portions of the blank which are defined between the respective pairs of cuts 40–45 and score lines 19 and 46 are designated as 50–54 respectively.

The assembled container is illustrated in FIGURES 2 and 3, and is elongated, having cross sectional dimensions which are relatively small in relation to its length. A plurality of small articles which may be of any specific type are contained within the box. For purposes of illustration, it is assumed that these articles, which are designated 60 in the drawings, are in the form of annular rings and are stacked in end to end relation in the box.

Externally, the length of the box is determined by the longitudinal dimension of the surfaces 11–14, and this dimension determines the maximum capacity of the box. However, it will be seen that effective internal length of

the box can be reduced or shortened, as shown in FIGURES 2 and 3, by pushing any of the portions 50–54 into the center of the box. Under these circumstances, the particular portion 50–54 which has been pushed in extends into the middle of the box and forms a stop or abutment which prevents the articles 60 from moving past it longitudinally. Thus, if none of the portions 50–54 is pushed in, the box is adapted to contain, say, 12 articles; by pushing in portion 50, the internal length of the box is reduced, so that the box can contain only 10 articles; by pushing in the sections 51, 52, 53 and 54 successively, the length of the box is further reduced so that it securely contains 9, 8, 7, or 6 articles. The articles are loaded into the box from the upper end 24, and the inverted portion 50–54 holds the articles snugly in the box and positioned in view behind the window 15.

The positions of the cuts or slits 40–45 determine the various lengths to which the box is adapted to be set. Where the box is to be used to contain different numbers of articles of the same size, the distances between the cuts 40–45 will all be equal. Where the box is to be used as a standardized container for packaging articles of several different sizes, the positions of the slits 40–45 correspond to the different internal lengths which the different sizes of the articles will require. Thus, the dimension from cut 45 to the upper edge of the box might correspond to the length of a stack of six articles of the smallest size; the distance from cut 44 to the upper edge of the box might correspond to the overall length of six articles of the next larger size, and so on.

The slits 40–45 extend across one surface of the box preferably to approximately the middle of the adjoining surface, so that the stops which are thereby provided will extend approximately into the middle of the container as illustrated in FIGURE 4. Score line 46, which defines one end of the sections 50–54, may if desired be positioned nearer to either longitudinal edge of the surface on which it is formed.

Although I have described the preferred embodiment of my invention herein, it will be appreciated that the invention is not limited to this embodiment alone but includes other variations and modifications falling within the scope of the claims which follow.

I claim:

1. A folding box for packaging articles of different lengths, said box having a front wall, a back wall, a pair of side walls connecting said front wall and back wall, closure means at each end of said box, a plurality of parallel, longitudinally spaced slits each extending transversely across one of said walls and about halfway across an adjacent wall, the longitudinal positions of said slits in said walls corresponding to the different lengths of the articles to be packaged in said box, and parallel, spaced, longitudinally extending score lines right angularly intersecting the ends of said slits, said score lines and each adjacent pair of slits thereby defining between them a portion of the walls of said box which, when inverted between said score lines into the interior of said box, extends approximately to the middle of the cross sectional area of said box to provide a longitudinal stop therein for preventing articles inserted in said box from shifting longitudinally beyond said stop.

2. An elongated folding box for packaging articles of different lengths, said box having a front wall, a back wall, a pair of side walls connecting said front wall and back wall, folding closure means at each end of said box, at least three parallel, longitudinally spaced slits each extending transversely across one of said walls and partway across a wall adjacent thereto, and two spaced, longitudinally extending score lines connecting the proximate ends of said slits, the longitudinal positions of said slits in said walls corresponding to the different lengths of the articles for packaging which said box is intended, said score lines and each adjacent pair of slits thereby defining between them a portion of the walls of said box which, when inverted between said score lines into the interior of said box, will extend approximately to the middle of the cross-sectional area of said box to provide an article-supporting longitudinal stop therein.

3. An elongated folding box for packaging mechandise of various overall lengths, said box having a front wall, a back wall, a pair of side walls connecting said front wall and back wall, folding closure means at each end of said box, at least three parallel, longitudinally spaced slits each extending transversely across at least a part of two adjacent walls of said box, the length of each said slit being greater than the width of one wall and less than the combined width of said two adjacent walls, the longitudinal positions of said slits corresponding to the various overall lengths of the merchandise to be packaged in said box, longitudinally extending score lines connecting the proximate ends of said slits, said score lines and each adjacent pair of slits thereby defining between them a portion of the walls of said box which, when inverted between said score lines into the interior of said box, will extend approximately to the middle of the cross-sectional area of said box to provide a merchandise supporting stop therein.

4. An elongated folding box for packaging a stack of small, generally similar articles, said box having a front wall, a back wall, side walls between said front wall and back wall, folding closure means at each end of said box, a series of at least three parallel, longitudinally spaced slits each extending transversely across one of said walls and partway across an adjacent wall, the longitudinal spacing of said slits equalling the height of one of the articles which is to be packaged in said box, and longitudinally extending score lines between the proximate ends of said slits, said score lines and each adjacent pair of slits thereby defining between them a portion of the walls of said box which, when inverted between said score lines into the interior of said box, will extend approximately to the middle of the cross-sectional area of said box to provide an article-supporting longitudinal stop therein for edgewise support of said articles in said box away from one end thereof.

5. An elongated folding box containing a stack of small, generally similar articles of merchandise, said box having a front wall, a back wall, side walls between said front wall and back wall, folding closure means at each end of said box, and at least three parallel, longitudinally spaced slits each extending transversely across one of said walls and partway across an adjacent wall, the longitudinal spacing of said slits in said walls corresponding to the height of one of the articles contained in said box, and longitudinally extending score lines between the proximate ends of said slits, said score lines and each adjacent pair of slits thereby defining between them portions of the walls of said box which, if inverted between said score lines into the interior of said box, will extend approximately to the middle of the cross-sectional area of said box to provide an article-supporting stop therein, one of said portions being inverted, said stack of articles being supported by the inverted portion above one end of said box.

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