Aug. 24, 1965 M. G. FRANKLIN, JR 3,202,339

CONTAINER

Filed April 24, 1964 2 Sheets-Sheet 1

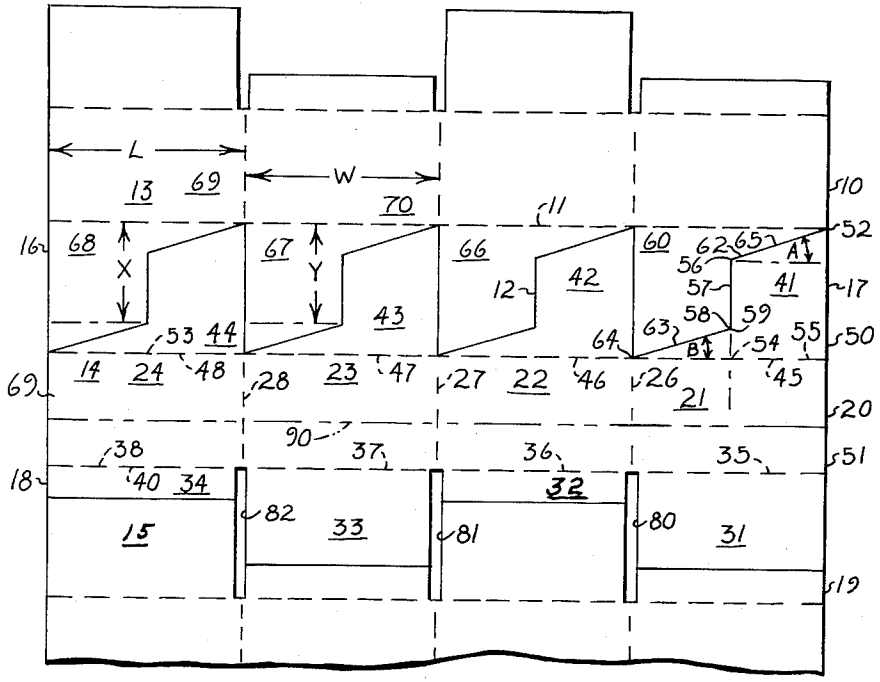


Fig. 1.

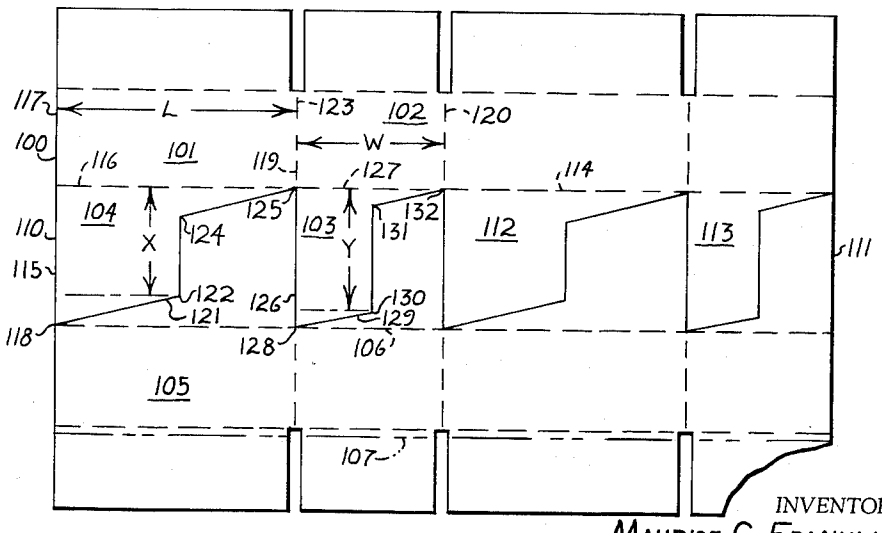


Fig. 8.

INVENTOR.
MAURICE G. FRANKLIN, JR
BY
Baldwin & Martin
ATTORNEYS

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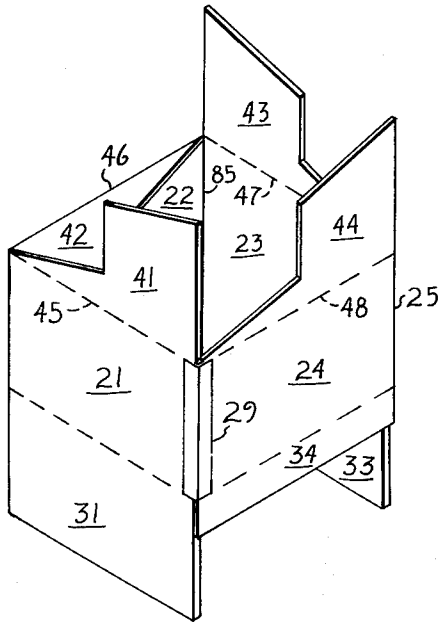


Fig. 2.

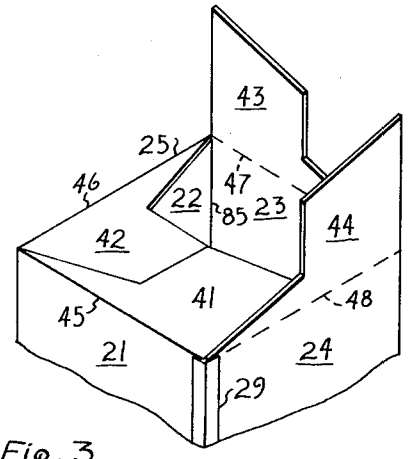


Fig. 3.

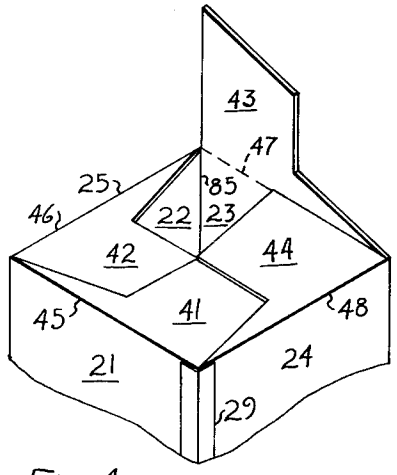


Fig. 4.

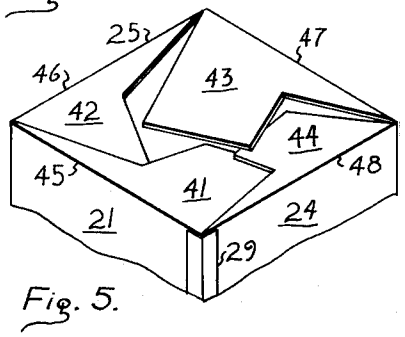


Fig. 5.

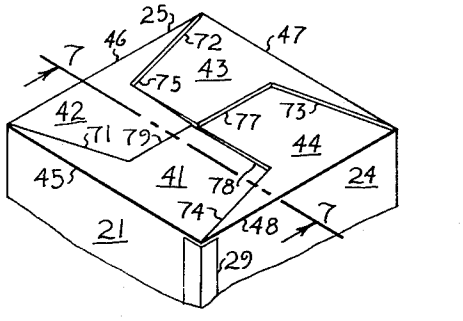


Fig. 6.

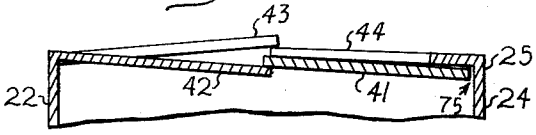


Fig. 7.

INVENTOR.
MAURICE G. FRANKLIN, JR.
BY
Baldwin & Martin
ATTORNEYS

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3,202,339

CONTAINER

Maurice G. Franklin, Jr., Muncie, Ind., assignor to St. Joe Paper Company, Jacksonville, Fla., a corporation of Florida

Filed Apr. 24, 1964, Ser. No. 362,250
11 Claims. (Cl. 229—39)

This invention relates to improvements in containers, and more particularly concerns a container typically formed of corrugated fibreboard or the like and specifically to a self-locking bottom container.

A general object of this invention is to provide an improved container.

Another general object is the provision of an improved self-locking bottom for a container.

A further general object of this invention is to provide an improved collapsible container.

An additional general object is the provision of an integral blank foldable into a collapsible container having a self-locking bottom.

A particular object of the invention is to provide an improved container erectable from a blank cut from a minimum of corrugated material in which the bottom flaps are nested with the bottom flaps of an adjacent blank wherein such bottom flaps form a self-locking bottom closure.

Another particular object is to provide an improved collapsible container having a self-locking bottom constructed with a minimum of waste and erectable with a minimum of effort.

A specific object is the provision of container blanks die cut from corrugated material in which waste and stripping are minimized.

The novel features which are believed to be characteristic of this invention are set forth with particularity in the appended claims. The invention itself, however, both as to its organization and method of operation, together with further objects and advantages thereof, may best be understood by reference to the following description taken in connection with the accompanying drawings, in which:

FIGURE 1 is a plan view of a sheet of material scored and cut into blanks in accord with the invention which may be folded and erected into square assembled containers;

FIGURE 2 is a bottom perspective exterior view of one of the blanks of FIGURE 1 partially erected into the square assembled container with one bottom flap closed;

FIGURE 3 is a partial view similar to FIGURE 2 with two bottom flaps closed;

FIGURE 4 is a partial view similar to FIGURE 2 with three bottom flaps closed;

FIGURE 5 is a partial view similar to FIGURE 2 showing the bottom flaps as the fourth bottom flap is being manipulated into position;

FIGURE 6 is a partial bottom perspective exterior view of the assembled container with the bottom flaps in their closing and locked positions;

FIGURE 7 is an enlarged cross-sectional view of the locked bottom of the assembled container taken along line 7—7 of FIGURE 6; and

FIGURE 8 is a plan view similar to FIGURE 1 depicting the blanks in accord with the invention which are foldable into rectangular containers.

Referring now more particularly to FIGURE 1, a sheet 10 of single wall corrugated fibreboard is scored, as shown by broken lines 11, indicating fold, hinge or crease lines, and is severed, as shown by full lines 12, indicating cuts extending through the fibreboard sheet

10. The scoring and severing of sheet 10 may be performed on the well known die cutting machines or modified printer-slotter machines. After the sheet 10 has been scored and cut, the sheet 10 is seen to comprise a plurality of nesting container blanks 13, 14 and 15, blanks 13 and 14 having their respective bottom portions 16 and 17 nested and blanks 14 and 15 having their respective top portions 18 and 19 nested.

Container blank 14 will be specifically described and the other blanks 13 and 15 will be understood to be identical therewith. Blank 14 comprises bottom portion 17, top portion 18 and body portion 20, blank 14 forming the partially erected square container 25 in FIGURE 2. Body portion 20 includes side wall panels 21, 22, 23 and 24, wall panels 21 and 22 being connected by wall angle fold line 26, wall panels 22 and 23 by fold line 27, and wall panels 23 and 24 by fold line 28. Top portion 18 includes top flaps 31, 32, 33 and 34 joined to respective side wall panels 21, 22, 23 and 24 respective fold lines 35, 36, 37 and 38, the width of alternate top flaps 32 and 34 being substantially less than the closing alternate top flaps 31 and 33 which have a width substantially equal to one-half the length of the top edges 39 and 40 of side wall panels 22 and 24, whereby the amount of fibreboard is conserved.

The bottom portion 17 in accordance with the invention includes bottom flaps 41, 42, 43 and 44 joined to respective side wall panels 21, 22, 23 and 24 at respective score lines 45, 46, 47 and 48. Bottom flap 41 will be described, it being understood that the other bottom flaps 42, 43 and 44 are identical in the blank 14. A side edge 50 of flap 41 extends generally in alignment with edge 51 of side wall panel 21 to a point 52 spaced outwardly from score line 45 at a distance greater than one-half the length of the bottom edge 53 of the side wall panel 24 which will be adjacent side wall panel 21 when blank 14 is set-up and connected, for example, by tape 29, as shown in FIGURE 2. At the midpoint 54 of bottom edge 55 the outer extremity point 56 of bottom flap 41 is substantially equal to one-half the length of bottom edge 53. An edge 57 extends downwardly from point 56 and terminates at point 58 which is coincident with point 59 on flap 60 of blank 13, point 59 with respect to bottom flap 60 being identical to point 56 on flap 41. Edge 57 is seen to be vertical and substantially parallel to side edge 17. An outer edge portion 62 of bottom flap 41 spans between points 52 and 56 at a predetermined angle A with respect to the horizontal and another outer edge portion 63 extends from point 56 to point 64 which approximately constitutes the point of intersection between score line 45 and score line 26, edge portion 63 being substantially parallel to edge portion 62 whereby angle A is substantially equal to angle B The lower or outer edge 65 of bottom flap 41 is seen to be formed by a pair of substantially parallel and offset edges 62 and 63 joined by vertically extending edge 57 substantially parallel to side edge 17 of bottom flap 41.

In actual construction of the blanks 13 and 14, the amount of sheet material used for the nesting bottom portions 16 and 17 is shown in FIGURE 1. However, it is to be understood that slightly less material may be used, i.e., point 52 may be spaced slightly downwardly and point 64 spaced slightly upwardly thereby decreasing angles A and B but maintaining points 56 and 59 substantially equal to one-half the length of bottom edge 53 of the adjacent side wall panel 24.

In accordance with this invention the blank 14 is erected into the partially set-up container 25 having vertically extending wall angles, including wall angles 85, between wall panels 21, 22, 23 and 24., as shown in FIGURE 2, by first folding the blank 14

of FIGURE 1 downwardly along wall angle fold lines 26, 27 and 28 and joining free edges 51 and 69 of respective side wall panels 21 and 24 by tape 29. Bottom flap 42 is folded inwardly along score line 46, as shown in FIGURE 2; bottom flap 41 is folded inwardly along score line 45 in partially overlapping position with respect to flap 42, as shown in FIGURE 3; bottom flap 44 is folded inwardly along score line 48 in partially overlapping position with respect to flap 41, as shown in FIGURE 4; and bottom flap 43 is folded inwardly along score line 47 in partially overlapping position with respect to flap 44, as shown in FIGURES 5 and 6. In order that the bottom flaps 41, 42, 43 and 44 form a self-locking bottom closure in accord with the invention, the bottom flap 43 must be forcibly depressed, generally together with flaps 41, 42 and 44, to permit the partial insertion of flap 43 in underlying relationship with respect to flap 42 thereby interleaving such flaps to form the self-locked bottom enclosure for container 25. Each of the narrow, generally triangular, bottom flap portions 71, 72, 73 and 74 overlie a part of the adjacent wide, generally trapezodial, bottom flap portions 75, 76, 77 and 78 of bottom flaps 42, 43, 44 and 41. The bottom flaps 41, 42, 43 and 44 are interleaved to form a self-locked bottom closure in which the lower edges, including edge 65, are outwardly exposed between points, including points 58 and 64, and the side edges, including side edge 50, are disposed within container 25. The bottom flaps 41, 42, 43 and 44 also have at least a portion of the lower edges, including edge 65, between the points, including points 52 and 56, disposed within container 25.

Due to the fact that the fibreboard is corrugated, the thickness of the material causes a slight overlap of the bottom flaps 41, 42, 43 and 44 generally centrally of the bottom closure. When single wall corrugated fibreboard is employed to construct the blank and container therefrom in accordance with this invention, the width of the bottom flaps 41, 42, 43 and 44 does not present any serious binding problem with such bottom flaps folded into the container 25. Binding may occur, as at 75 in FIGURE 7, when double wall corrugated fibreboard is employed, and such binding may be precluded by providing the blank with slots by the common slotting technique between the bottom flaps 42 and 60, 43 and 66, and 44 and 67, substantially identical to slots 80, 81 and 82 in the nested top portions 18 and 19, as shown in FIGURE 1.

A blank 100 for folding into a rectangular container in accordance with the invention is depicted in FIGURE 8 together with another blank 105 having their respective bottom portions 110 and 111 nested in similar relation to the nested bottom portions 16 and 17 of blanks 13 and 14, previously described in connection with FIGURE 1. In order that the bottom portions 110 and 111 be nested without waste of material the length L to width W ratio must not exceed the theoretical maximum limit of 2:1, the practical maximum ratio limit being less than 2:1 due partially to the necessary bending of the bottom flaps 103, 104, 112 and 113 on fold line 114, the flexibility of corrugated fibreboard and the manufacturing tolerances and the like. As the length to width ratio approaches 2:1, the vertical side edge 115 of bottom flap 104 extends outwardly from its upper edge 116 adjacent and in general alignment with a side edge 117 of wall panel 101 to a first point 118 at a first distance greater than one-half the predetermined distance between the side edges 119 and 120 of the adjacent end wall panel 102, the first distance also being equal to or slightly less than such predetermined distance in order for bottom flap 104 to properly fit within the container when folded and manipulated into a self-locked bottom closing position. The lower edge 121 extends upwardly from first point 118 to a second point 122 spaced midway between the side wall panel side edges 117 and 123 at a distance from bottom flap upper edge 116 of at least one-half the distance between the side edges 119 and 120 of the adjacent end wall panel 102 and less than the distance of the first point 118 from bottom flap upper edge 116. The lower edge 121 extends generally vertically from the second point 122 to a third point 124 closely spaced from bottom flap upper edge 116 at a distance less than one-half the distance between side edges 119 and 120 of the adjacent end wall panel 102. The lower edge 121 further extends generally upwardly from the third point 124 to and terminates at a fourth point 125 substantially coincident with the bottom flap upper edge 116 adjacent site edge 123 of side wall panel 101.

Bottom flap 103 includes a generally vertical side edge 126 extending outwardly from the bottom flap upper edge 127 adjacent and in general alignment with side edge 119 of end wall panel 102 to a first point 128 at a distance greater than one-half the distance between the side edges 117 and 123 of adjacent side wall panel 101 and equal to or slightly less than the distance between side edges 117 and 123. The lower edge 129 of bottom flap 103 extends generally upwardly from point 128 to a second point 130 spaced midway between the side edges 119 and 120 of end wall panel 102 at a distance from the bottom flap upper edge 127 of at least one-half the distance between the side edges 117 and 123 of the adjacent side wall panel 101 and less than the distance of the first point 128 from bottom flap upper edge 127. The lower edge 129 extends vertically to a third point 131 and further generally upwardly to a fourth point 132 corresponding in a general manner to points 122 and 124, previously described in connection with bottom flap 104. It is to be understood that bottom flap 112 is substantially identical to bottom flap 104 and bottom flaps 113 and 103 are identical.

The square box blank 13 will be considered in connection with dimensional requirements of the bottom flaps 60, 66, 67 and 68 and it is understood that the bottom flaps 41, 42, 43 and 44 of blank 14 are identical. When the length L of side wall 69 is equal to the width W of adjacent side wall 70, the bottom flaps 67 and 68, at respective points ½W and ½L, must extend outwardly a respective distance Y and X, wherein $Y=\frac{1}{2}L$, $X=\frac{1}{2}W$ and $Y=X$, as shown in FIGURE 1.

Considering rectangular box blank 100, as the length L of side wall 101 approaches twice the adjacent width W of side wall 102, the bottom flaps 103 and 104 at respective points ½W and ½L must extend outwardly a respective distance Y and X, wherein $Y=\frac{1}{2}L$ and $X\geqq\frac{1}{2}W$, as shown in FIGURE 8. Thus, as a practical limit for obtaining nested bottom flaps of blanks without waste of material, the length to width ratio of the container is less than 2:1.

In order that either of the box blanks 13 or 100 include self-locking bottoms, the bottom flaps adjacent a corner fold line or edge must extend outwardly a distance greater than the respective distances X and Y on the particular flap in question, but cannot extend outwardly a distance greater than the distance between the side edges of the adjacent wall panel.

When the length to width ratio of the container is 2:1 and above, the nested arrangement of the bottom flaps with waste and stripping ceases. However, it is to be understood, that blanks foldable into a container, in which the length to width ratio is 2:1 or above, are within the intended scope of the invention described and claimed herein.

By examination of FIGURE 1, it is apparent that a square regular slotted container blank would require that the bottom flaps have a lower edge at a distance equal to one-half the distance between the side edges of the wall panels, such lower edge being parallel to the fold line between the wall panel and bottom flap. The next adjacent blank would then require the same amount of material as required above. With respect to the blanks 13 and 14 in accordance with this invention, the material savings of the bottom flap areas, as compared with two regular

slotted container blanks, is represented between fold lines 45–48 and line 90 to be approximately thirty percent (30%). A common form of a square container having a self-locking bottom employs identical right triangular bottom flaps in which each flap extends outwardly a distance equal to the distance between the side edges of the adjacent wall panels. See the article entitled, "Resources in Expired Patents," by S. J. Leone, in Modern Packaging magazine, for May 1961, at pages 135, 138, 139 and 140. Such triangular bottom flap square containers use the same amount of material as two regular slotted containers, and the material savings of the bottom flap areas thereover by the square container blanks 13 and 14 of FIGURE 1 is also approximately thirty percent (30%).

With reference to the rectangular blanks 100 and 105 in accordance with the invention, the material savings of the bottom flap areas, as compared, for example, with two center special slotted container blanks, is represented between fold line 106 and 107 to be approximately forty percent (40%).

While only certain preferred embodiments of this invention have been shown and described by way of illustration, many modifications will occur to those skilled in the art and it is, therefore, desired that it be understood that it is intended in the appended claims to cover all such modifications as fall within the true spirit and scope of this invention.

What is claimed as new and what it is desired to secure by Letters Patent of the United States is:

1. An integral blank for folding into a container comprising a top portion, a body portion and a bottom portion, said body portion including four side wall panels each having side edges and an upper edge and a lower edge, said top portion including four top flaps having lower edges connected by fold lines to respective said wall panel upper edges, said bottom portion including four bottom flaps having upper edges and lower edges, said bottom flap upper edges being connected by score lines to and substantially coextensive with respective said wall panel lower edges, each said bottom flap having a side edge substantially in alignment with one said wall panel side edge and extending vertically and outwardly to a first point a first distance from said upper edge of said bottom flap greater than one-half the predetermined distance between the side edges of the adjacent wall panel and equal to or less than said predetermined distance, each said bottom flap lower edge extending from said first point inwardly to a second point equally spaced between said wall panel side edges at a second distance measured vertically and outwardly from said upper edge of said bottom flap of at least one-half said predetermined distance and less than said first distance, each said bottom flap lower edge further extending generally vertically and inwardly from said second point to a third point spaced adjacently vertically and outwardly from said upper edge of said bottom flap, each said bottom flap further extending inwardly from said third point and terminating at a fourth point generally at the intersection of the other said wall panel side edge and said upper edge of said bottom flap.

2. A blank for folding into a container comprising a body portion having four side wall panels and a bottom portion having four bottom flaps, each said side wall panel having side edges and a lower edge, each said bottom flap having an upper edge connected to and coextensive with a respective said wall panel lower edge, each said bottom flap having a generally vertical side edge extending vertically and outwardly from said bottom flap upper edge adjacent one said wall panel side edge to a first point at a first distance greater than one-half the predetermined distance between said side edges of an adjacent said wall panel and equal to or less than said predetermined distance, each said bottom flap having a lower edge connected to a respective said bottom flap side edge at respective said first point and extending upwardly to a second point spaced midway between said wall panel side edges at a vertical distance from said bottom flap upper edge of at least one-half said predetermined distance and less than said first distance, each said bottom flap lower edge extending from said second point generally vertically and upwardly to a third point downwardly spaced from said bottom flap upper edge, each said bottom flap lower edge further extending from said third point upwardly to and terminating at a fourth point substantially coincident with said bottom flap upper edge adjacent the other said wall panel side edge.

3. An integral blank for folding into a container comprising a top portion, a body portion and a bottom portion, said body portion including four side wall panels each having side edges and an upper edge and a lower edge, said top portion including four top flaps having lower edges connected by fold lines to respective said wall panel upper edges, said bottom portion including four bottom flaps having upper edges and lower edges, said bottom flap upper edges being connected by score lines to and substantially coextensive with respective said wall panel lower edges, each said bottom flap having a substantially trapezoidal portion and a substantially triangular portion, the upper edge of the trapezoidal portion constituting one-half said bottom flap upper edge, an edge of the triangular portion constituting the other one-half of said bottom flap upper edge, each said bottom flap having a side edge substantially in alignment with one said wall panel side edge constituting one side edge of said trapezoidal portion and extending vertically and outwardly to a first point a first distance from said upper edge of said bottom flap greater than one-half the predetermined distance between the side edges of the adjacent wall panel and equal to or less than said predetermined distance, each said bottom flap lower edge extending from said first point inwardly to a second point equally spaced between said wall panel side edges at a second distance measured vertically and outwardly from said upper edge of said bottom flap of at least one-half said predetermined distance and less than said first distance and constiuting the lower edge of said trapezoidal portion, each said bottom flap lower edge further extending generally vertically and parallel to said bottom flap side edge and inwardly from said second point to a third point spaced adjacently outwardly from said upper edge of said bottom flap, each said bottom flap further extending inwardly from said third point and terminating at a fourth point adjacent the other said wall panel side edge and constituting the lower edge of said triangular portion, the other edge of said triangular portion extends between said third point and said upper edge of said triangular portion, the other side edge of said trapezoidal portion being constituted by said bottom flap lower edge between said second and third points and further between said third point and said upper edge of said trapezoidal portion, said other edge of said triangular portion being integral and coextensive with said other side edge of said trapezoidal portion between said third point and said bottom flap upper edge.

4. A blank for folding into a rectangular container having a self-locking bottom comprising a body portion having two side wall panels and two end wall panels and a bottom portion having four bottom flaps, each said wall panel having side edges and a lower edge, each said bottom flap having an upper edge connected to and coextensive with a respective said wall panel lower edge, each said bottom flap attached to said side wall panels having a generally vertical side edge extending vertically and outwardly from said bottom flap upper edge adjacent one said side wall panel edge to a first point at a first distance greater than one-half the predetermined distance between said side edges of an adjacent said end wall panel and equal to or less than said predetermined distance, each said side bottom flap having a lower edge connected to a respective said bottom flap side edge at respective said first point and extending upwardly to a second point spaced midway between said side wall panel side edges at a vertical dis-

tance from said bottom flap upper edge of at least one-half said predetermined distance and less than said first distance, each said lower edge of said side bottom flap extending from said second point generally vertically and upwardly to a third point downwardly spaced from said bottom flap upper edge at a distance less than one-half said predetermined distance, each said lower edge of said side bottom flap further extending from said third point upwardly to and terminating at a fourth point substantially coincident with said bottom flap upper edge adjacent the other said side wall panel side edge, each said bottom flap attached to said end wall panels having a generally vertical side edge extending vertically and outwardly from said bottom flap upper edge adjacent one said end wall panel edge to a first point at a first distance greater than one-half the predetermined distance between said side edges of an adjacent said side wall panel and equal to or less than said predetermined distance, each said end bottom flap having a lower edge connected to a respective said bottom flap side edge at respective said first point and extending upwardly to a second point spaced midway between said end wall panel side edges at a vertical distance from said bottom flap upper edge of at least one-half said predetermined distance and less than said first distance, each said bottom flap lower edge of said end bottom flap extending from said second point generally vertically and upwardly to a third point downwardly spaced from said bottom flap upper edge, each said lower edge of said end bottom flap further extending from said third point upwardly to and terminating at a fourth point substantially coincident with said bottom flap upper edge adjacent the other said end wall panel side edge.

5. An integral blank for folding into a square container comprising a top portion, a body portion and a bottom portion, said body portion including four side wall panels each having side edges and an upper edge and a lower edge, said top portion including four top flaps having lower edges connected by fold lines to respective said wall panel upper edges, said bottom portion including four bottom flaps having upper edges and lower edges, said bottom flap upper edges being connected by score lines to and substantially coextensive with respective said wall panel lower edges, each said bottom flap having a side edge substantially in alignment with one said wall panel side edge and extending vertically and outwardly to a point a first distance from said upper edge of said bottom flap greater than one-half the predetermined distance between said wall panel side edges and equal to or less than said predetermined distance, each said bottom flap lower edge extending from said point inwardly to a second point equally spaced between said wall panel side edges at a second distance measured vertically and outwardly from said upper edge of said bottom flap of at least one-half said predetermined distance and less than said first distance, each said bottom flap lower edge further extending generally vertically and inwardly from said second point to a third point spaced adjacently outwardly from said upper edge of said bottom flap, each said bottom flap further extending inwardly from said third point and terminating at a fourth point adjacent said upper edge of said bottom flap and the other said wall panel side edge.

6. A blank for folding into a container having a length to width ratio of less than 2:1 comprising a body portion having four side wall panels and a bottom portion having four bottom flaps, each said side wall panel having side edges and a lower edge, each said bottom flap having an upper edge and a lower edge, each said bottom flap upper edge being connected to and substantially coextensive with respective said wall panel lower edge, each said bottom flap lower edge beginning at a first point a first distance from said bottom flap upper edge greater than one-half the predetermined distance between said side edges of an adjacent said wall panel and equal to or less than said predetermined distance and extending upwardly to a second point spaced midway between said wall panel side edges at a second distance from said bottom flap upper edge of at least one-half said predetermined distance and less than said first distance, each said bottom flap lower edge extending from said second point generally vertically and upwardly to a third point closely spaced from said bottom flap upper edge, each said bottom flap lower edge further extending from said third point upwardly to and terminating at a fourth point substantially coincident with said bottom flap upper edge adjacent one said wall panel side edge, said bottom flaps on adjacently formed blanks nesting with said lower edges of said bottom flaps substantially abutting the lower edges of the bottom flaps on an adjacent blank thereby conserving blank forming material.

7. An integral blank for folding into a self-locking bottom container having a length to width ratio of less than 2:1 comprising a top portion having four top flaps each having a lower edge, body portion having four side wall panels each having side edges and an upper edge and a lower edge, each said top flap connected by fold lines to respective said wall panel upper edge, a bottom portion having four bottom flaps each having an upper edge and a lower edge, each said bottom flap upper edge being connected to and substantially coextensive with respective said wall panel lower edge, each said bottom flap lower edge beginning at a first point a first distance greater than one-half the predetermined distance from said bottom flap upper edge between said side edges of an adjacent said wall panel and equal to or less than said predetermined distance, and extending upwardly to a second point spaced midway between said wall panel side edges at a second distance from said bottom flap upper edge of at least one-half said predetermined distance and less than said first distance, each said bottom flap lower edge extending from said second point generally vertically and upwardly to a third point closely spaced from said bottom flap upper edge, each said bottom flap lower edge further extending from said third point upwardly to and terminating at a fourth point substantially coincident with said bottom flap upper edge adjacent one said wall panel side edge, said bottom flaps on adjacently formed blanks nesting with said lower edges of said bottom flaps substantially abutting the lower edges of the bottom flaps on an adjacent blank thereby conserving blank forming material.

8. A container comprising a body portion having four vertical wall panels connected to the next and forming respective wall angles, a self-locking bottom portion having four bottom flaps each including an upper edge connected by a score line to and substantially coextensive with each wall panel lower edge, each said bottom flap having a side edge substantially in parallel with the adjacent said wall panel lower edge and extending outwardly from one said score line adjacent one said wall angle to a first point a first distance greater than one-half the predetermined distance between said wall angles of an adjacent said wall panel and equal to or less than said predetermined distance, each said bottom flap having a lower edge extending from said first point inwardly to a second point equally spaced between said one and the other wall angles at a second distance from said one score line of at least one-half said predetermined distance and less than said first distance, each said bottom flap lower edge further extending generally horizontally and inwardly from said second point to a third point spaced adjacently outwardly from said one score line, each said bottom flap lower edge extending inwardly from said third point and terminating at a fourth point adjacent the other said wall angle and said one score line, said bottom flaps being positioned in partially overlapping condition each with the next to form a self-locking closure for the container.

9. A square container comprising a body portion having four vertical wall panels connected to the next and forming respective wall angles, a self-locking bottom portion having four bottom flaps each including an inner

edge connected by a score line to and substantially coextensive with a wall panel lower edge, each said bottom flap having a side edge substantially in parallel with the adjacent said wall panel lower edge and extending outwardly from one said score line adjacent one said wall angle to a first point a first distance greater than one-half the predetermined distance between said wall angles, each said bottom flap having an outer edge extending from said first point inwardly to a second point equally spaced between said wall angles at a second distance from said one score line of at least one-half said predetermined distance and less than said first distance, each said bottom flap outer edge further extending generally horizontally and inwardly from said second point to a third point spaced adjacently outwardly from said one score line, each said bottom flap outer edge extending inwardly from said third point and terminating at a fourth point adjacent the other said wall angle and said one score line, said bottom flaps being partially overlapped each with the next to form a self-locking closure for the square container.

10. A container comprising a body portion having four vertical wall panels connected to the next and forming respective wall angles, a self-locking bottom portion having four bottom flaps each including an upper edge connected by a score line to and substantially coextensive with a wall panel lower edge, each said bottom flap having a side edge substantially in parallel with the adjacent wall panel lower edge and extending outwardly from one said score line adjacent one said wall angle to a first point a first distance greater than one-half the predetermined distance between said wall angles of an adjacent said wall panel and equal to or less than said predetermined distance, each said bottom flap having a lower edge extending from said first point inwardly to a second point equally spaced between said wall angles at a second distance from said one score line of at least one-half said predetermined distance and less than said first distance, each said bottom flap lower edge further extending generally horizontally and inwardly from said second point to a third point spaced adjacently outwardly from said one score line, each said bottom flap lower edge extending inwardly from said third point and terminating at a fourth point adjacent the other said wall angle and said one score line, said bottom flaps being interleaved to outwardly expose each said lower edge of each said bottom flap between said third and fourth points and to dispose each said side edge of respective said bottom flap within the container, each said lower edge of each said bottom flap between said first and second points being at least partially disposed within the container.

11. A container comprising a body portion having four

vertical wall panels connected to the next and forming respective wall angles, a self-locking bottom portion having four bottom flaps each including an upper edge connected by a score line to and substantially coextensive with a wall panel lower edge, each said bottom flap having a side edge substantially in parallel with the adjacent wall panel lower edge and extending outwardly from one said score line adjacent one said wall angle to a first point a first distance greater than one-half the predetermined distance between said wall angles of an adjacent said wall panel and equal to or less than said predetermined distance, each said bottom flap having a lower edge extending from said first point inwardly to a second point equally spaced between said wall angles at a second distance from respective said fold line of at least one-half said predetermined distance and less than said first distance, each said bottom flap lower edge further extending generally horizontally and inwardly from said second point to a third point spaced adjacently outwardly from said one score line, each said bottom flap lower edge extending inwardly from said third point and terminating at a fourth point adjacent the other said wall angle and said one score line, each said bottom flap being constituted by a trapezoidal portion and a triangular portion, the upper edge of each said trapezoidal portion and one edge of each said triangular portion constituting one-half of said upper edge of each said bottom flap, said side edge of each said bottom flap constituting one side edge of each said trapezoidal portion, the lower edge of each said trapezoidal portion being constituted by said lower edge of each said bottom flap between said first and second points, another edge of each said triangular portion being constituted by said lower edge of each said bottom flap between said third and fourth points, the other side edge of each said trapezoidal portion being partially constituted by said lower edge of each said bottom flap between said second and third points, said bottom flaps being interleaved to outwardly expose each said lower edge between said third and fourth points and to dispose each said side edge of respective said bottom flap within the container.

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FRANKLIN T. GARRETT, *Primary Examiner.*