Aug. 21, 1951 C. D. WELSHENBACH 2,565,188

POLYGONAL BOX

Filed Nov. 4, 1948

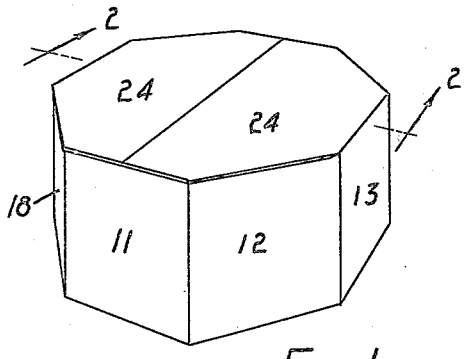


Fig. 1

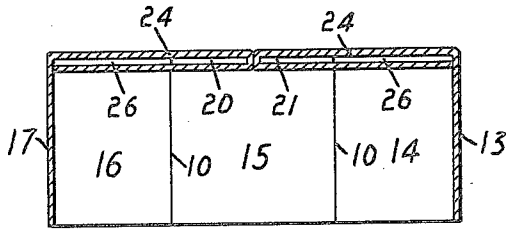


Fig. 2

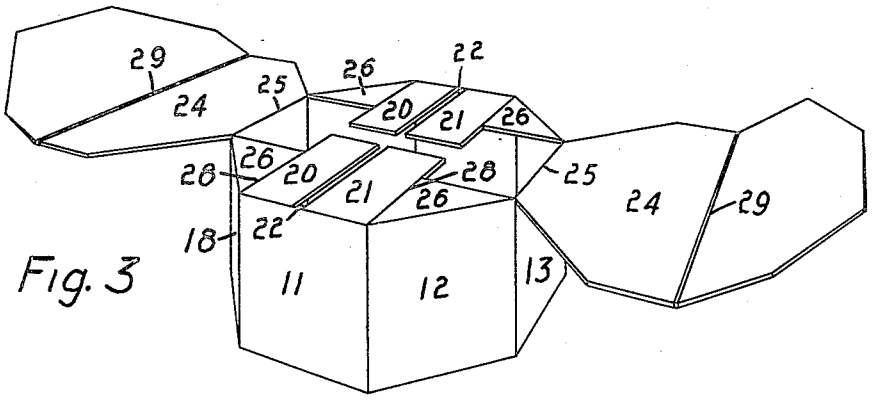


Fig. 3

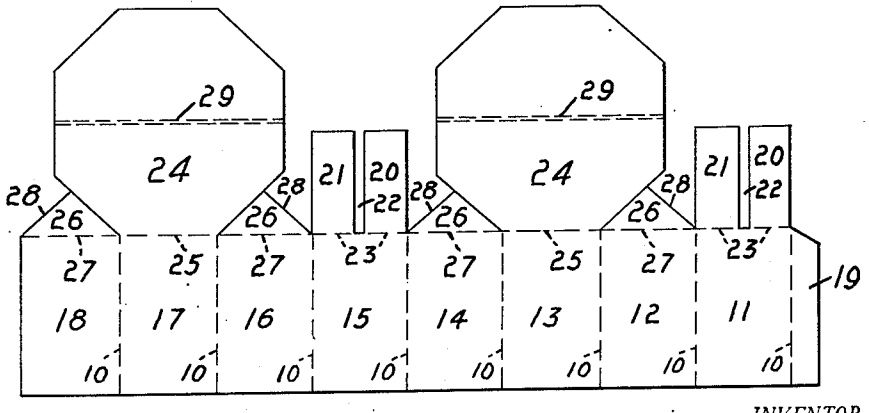


Fig. 4

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POLYGONAL BOX

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2 Claims. (Cl. 229—16)

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This invention relates to polygonal paperboard boxes and more particularly to a reinforced bottom structure for such boxes.

It is the object of the invention to provide a polygonal paperboard box of eight or more sides forming the vertical walls that can be folded flat for shipment or storage and that has a bottom that is formed by flats hinged to the vertical walls that interfit and fold to produce a bottom structure which has substantial load sustaining capacity and that interiorly engages the vertical walls to hold the box to shape.

With the above and other objects in view, the invention may be said to comprise the box as illustrated in the accompanying drawings and hereinafter described, together with such variations and modifications thereof as will be apparent to one skilled in the art to which the invention pertains.

Reference should be had to the accompanying drawings forming a part of this specification, in which:

Figure 1 is a perspective view of the box in inverted position;

Fig. 2 is a vertical section taken on the line indicated at 2—2 in Fig. 1;

Fig. 3 is a perspective view of the box in inverted position showing the flaps which form the bottom structure; and

Fig. 4 is a plan view of the one-piece blank of which the box is formed.

The box of the present invention is formed from a one-piece paperboard blank which is divided by a series of parallel fold lines 10 into rectangular portions 11, 12, 13, 14, 15, 16, 17 and 18 which form the vertical walls of the box and an end tab 19 at the edge of the wall portion 11 at one end of the blank which is adapted to be secured to the inner face of the wall 18 to form the tubular body of the box.

The bottom of the box is formed by means of a series of flaps which are formed integrally with the vertical walls 11 to 18 inclusive and hinged to their bottom edges. The walls 11 and 15 which in the completed box are diametrically opposite and parallel to one another, are each provided with a pair of integral flaps 20 and 21 which are separated by a narrow central slot 22. The flaps 20 and 21 serve as supporting flaps for the bottom structure and are hingedly connected to the walls 11 and 15 by means of fold lines 23 which permit the flaps to be moved to horizontal position as shown in Fig. 3. The slots 22 are centrally disposed so that when the flaps 20 and 21 are disposed in horizontal position the slots 22

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are in alinement and disposed diametrically of the box bottom.

The walls 13 and 17 which are parallel to each other and at right angles to the walls 11 and 15 are each provided with an integral flap 24 that is of polygonal shape and that conforms to the bottom end of the box, the peripheral edges of the polygonal flaps corresponding in length to the bottom edges of the vertical walls of the box, one edge of each of the polygonal flaps being integral with the vertical wall 13 or 17 and being hingedly connected thereto by a fold line 25.

Each of the intermediate walls 12, 14, 16 and 18 has a triangular flap 26 hingedly connected thereto by means of a fold line 27. Each of the triangular flaps 26 has a side edge 28 which is disposed at an angle to the adjacent edge of a supporting flap 21 or 22 such that when the flaps are positioned horizontally as shown in Fig. 3, the edges 28 abut the adjacent side edges of the flaps 20 and 21 to brace the same and stiffen the bottom structure.

Each of the flaps 24 has a wide crease or double fold line 29 extending diametrically across the same parallel to the fold line 25 dividing the polygonal flap into two equal sections so that the outer end portions of the flaps may be inserted through the slots 22 and the outer halves of the flaps folded against the interior faces of the flaps 20, 21 and 26 as shown in Fig. 2. Since the flaps 24 each conform to the bottom end of the box, the outer end portions of the flaps folded against the inner faces of the flaps 20, 21 and 26 engage with the inner faces of the vertical walls 11 to 18 inclusive and hold the box against collapse. The flaps 20, 21 and 26 which lie between the inner and outer portions of the bottom forming flaps 24 also brace the walls of the box to retain the same in their proper positions.

It is to be understood that in accordance with the provisions of the patent statutes, variations and modifications of the specific devices herein shown and described may be made without departing from the spirit of the invention.

What I claim is:

1. In a paperboard box having a pair of diametrically opposite parallel side walls, a second pair of diametrically opposite parallel side walls disposed at right angles to the side walls of the first pair and four side walls intermediate the side walls disposed at right angles to one another to form a tubular body octagonal in transverse section, a bottom structure comprising a pair of supporting flaps hinged to the bottom edge of each of the parallel walls of the first pair, the

supporting flaps of each pair being spaced apart to provide a narrow elongated slot therebetween, the slots between said flaps being in alinement when the flaps are disposed in a transverse plane, a bracing flap hinged to the bottom edge of each of said intermediate walls, each of said bracing flaps having an edge that abuts an edge of a supporting flap when the bracing and supporting flaps are disposed in a transverse plane, and two octagonal flaps, each hinged to one of said second pair of parallel walls and each conforming substantially to the transverse cross section of the box, each of said octagonal flaps having a diametrical crease parallel to its hinged edge and providing a hinged end section adapted to be inserted through the slots between the supporting flaps and folded against the inner faces of said supporting and bracing flaps to form a self sustaining knock down octagonal bottom closure structure having supporting parts hinged to all eight side walls.

2. A knock down paperboard box having eight parallel side walls joined edge to edge to form a tubular body that is octagonal in transverse section, each of a first pair of diametrically opposite side walls having a pair of bottom supporting flaps that are spaced apart to provide a narrow elongated slot therebetween, each of the four side walls adjoining one of said first pair of side walls having a triangular bracing bottom flap hinged thereto, each of said bracing flaps abutting the adjacent supporting flap in edge to edge

relation when disposed in a transverse plane, and each of the remaining diametrically opposite side walls having an octagonal bottom flap hinged thereto that substantially conforms to the transverse section of said shell, each of said octagonal flaps having a diametrical crease parallel to its hinged edge and to the slots between said pairs of supporting flaps, whereby, when the bracing and supporting flaps are disposed in parallel transverse planes, the diametrically creased portions of both of said octagonal flaps may be received in said slots with the ends of the octagonal flaps folded back against the inner faces of said supporting and bracing flaps to form a bottom closure structure of interlocked flaps integrally hinged to and supported by each of said eight side walls.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,892,714	Wellman	Jan. 3, 1933

FOREIGN PATENTS

Number	Country	Date
61,585	Denmark	Nov. 1, 1943
530,091	Great Britain	Dec. 4, 1940