June 28, 1955 R. C. STENGER 2,711,677

METHOD OF ERECTING DOUBLE WALLED BOXES

Filed April 19, 1952 2 Sheets-Sheet 1

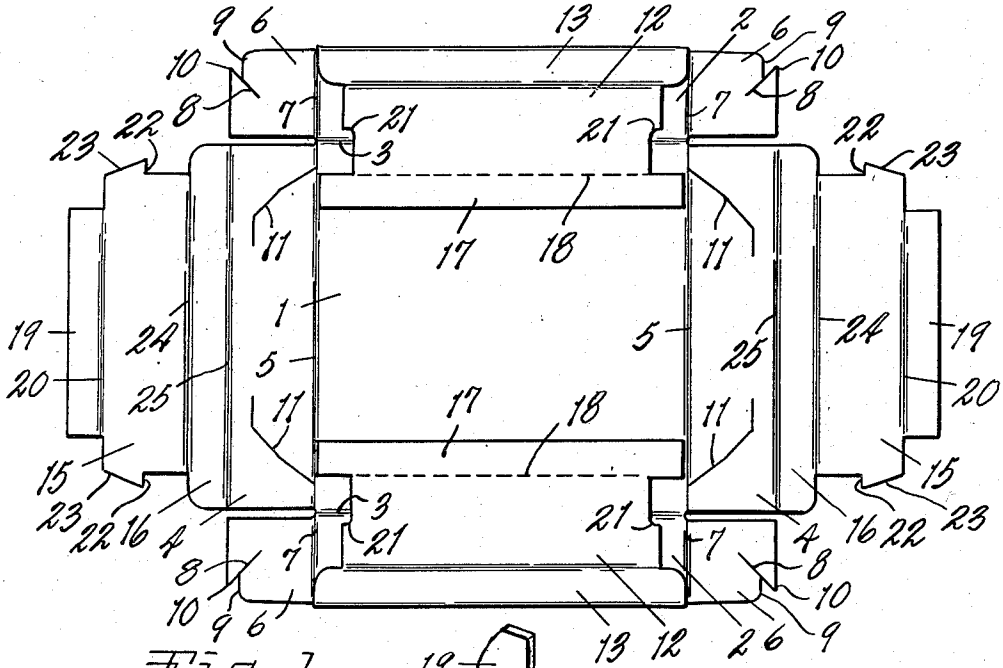


Fig. 1.

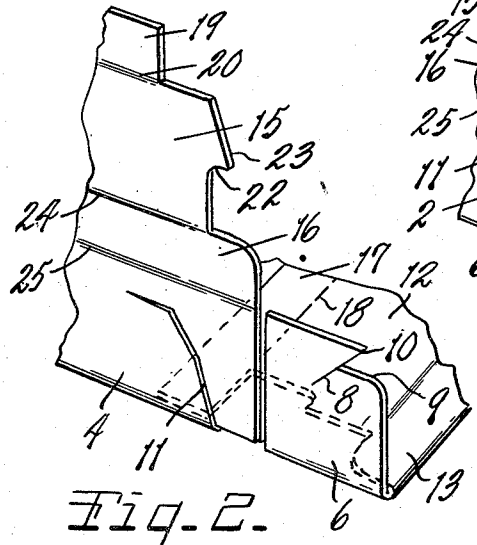


Fig. 2.

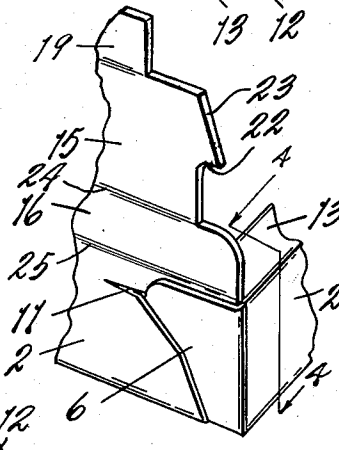


Fig. 3.

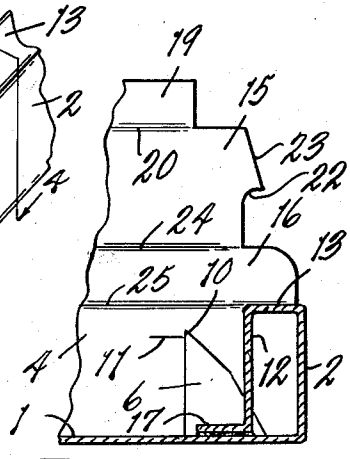


Fig. 4.

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METHOD OF ERECTING DOUBLE WALLED BOXES

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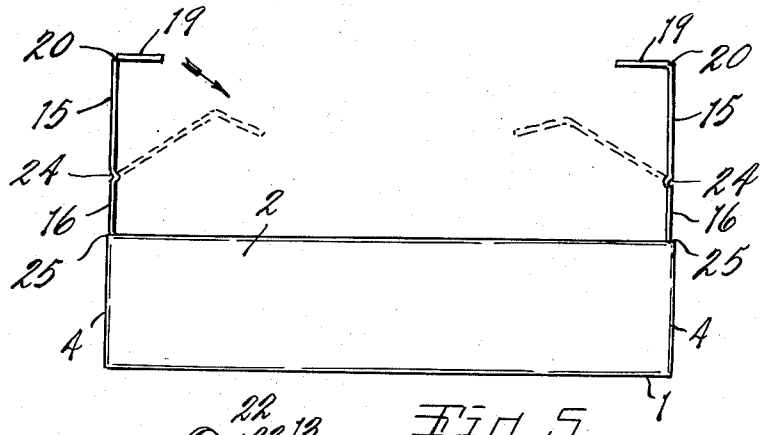


Fig. 5.

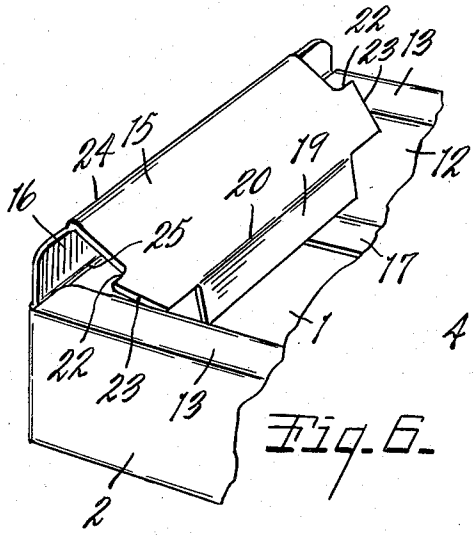


Fig. 6.

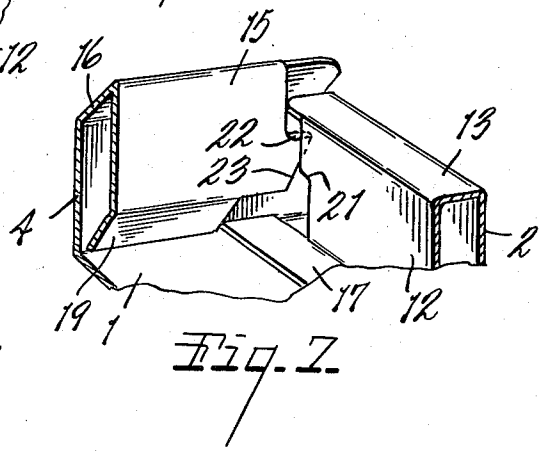


Fig. 7.

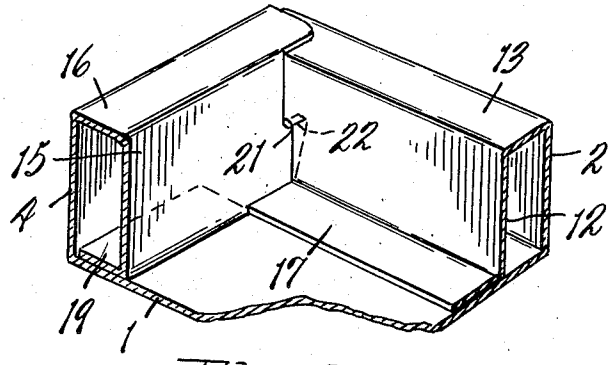


Fig. 8.

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METHOD OF ERECTING DOUBLE WALLED BOXES

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Application April 19, 1952, Serial No. 283,170

3 Claims. (Cl. 93—49)

This invention relates to a method of erecting double walled boxes.

The main objects of this invention are:

First, to provide a method of erecting a double walled box such as is shown in my application for patent filed February 23, 1952, Serial No. 272,928, now abandoned.

Second, to provide a method of erecting a double walled box from a collapsed condition which may be practiced by machine or manually and one which results in an effective interlocking of the parts when the structure is in completely erected position.

Objects relating to details and economies of the invention will appear from the description to follow. The invention is defined and pointed out in the claims.

A preferred embodiment of the invention is illustrated in the accompanying drawing, in which:

Fig. 1 is a plan view of a collapsed box which may be erected by my method.

Fig. 2 is an enlarged fragmentary perspective view illustrating an initial step in the erecting of the box or carton.

Fig. 3 is a fragmentary perspective view illustrating a succeeding step in which the corner flaps of the outer end walls are interlockingly engaged with the inner and outer side walls in erected position.

Fig. 4 is a transverse section on a line corresponding to line 4—4 of Fig. 3.

Fig. 5 is a side elevational view of a partially erected structure with the certain parts shown in one position in full lines and in a succeeding position by dotted lines.

Fig. 6 is a fragmentary perspective view showing the parts in a position succeeding that shown in Fig. 5.

Fig. 7 is a fragmentary perspective view illustrating a position of the parts succeeding that shown in Fig. 6.

Fig. 8 is an inside perspective view of the completely erected box.

The box illustrated is a square box but I use the term side and end walls in the specification and claims for convenience and brevity in description. It will be understood that the box erected by the method may be of any desired size and proportion.

Referring to the drawing; Fig. 1 illustrates the box or carton in collapsed form and my method is designed to erect the box from that collapsed form. The box is formed of an integral blank and comprises a main or bottom panel **1**, outer side walls **2** hingedly connected to the bottom of panel **1** at **3**. The outer side walls are provided with corner flaps **6** hingedly connected to the ends thereof at **7**. These corner flaps have slits **8** extending diagonally downward from their outer edges and are cut away at **9** to provide upwardly projecting tongues **10**. The outer end walls have angular slits **11** therein which extend in a generally diagonal inward direction from the hinging scores **5**. When the box is erected the corner flaps **6** are inserted through the slits **11** with the tongues **10** engaging the end wall above the upper edges of the slits.

The inner side walls **12** are hingedly connected to the upper edges of the outer side walls by the top spacer members **13** while the inner end walls **15** are hingedly connected to the upper edges of the outer end walls **4** by means of the top spacer members **16** which are of the same width as the top spacer members **13**. The inner side walls **12** have sealing flaps **17** hinged to their lower edges at **18**, the sealing flaps being adhesively secured to the bottom with the inner side walls in parallel relation to the outer side walls. This permits the collapsing of the carton with the sealing flaps thus adhered as is shown in Fig. 1. The blank then being erected to the extent that the inner side walls, top spacer member **13** and the sealing flaps **17** are folded inwardly as shown in Fig. 1 and the sealing flaps adhesively secured.

The inner end walls **15** are provided with bottom spacer members **19** hingedly secured thereto at **20**. The end edges of the inner side walls **12** are stepped to provide inwardly facing shoulders or keepers **21**. These inner side walls are shorter than the outer side walls as is shown in Fig. 1. The inner end walls **15** are likewise shorter than the outer end walls and their end edges are stepped or cut to provide upwardly facing shoulders or keepers **22** which coact with the shoulders or keepers **21** when the parts are erected.

The end portions of the inner end walls below the lugs or keepers **22** are beveled at **23** to facilitate the engagement of the parts.

With the interlocking corners flaps of the type illustrated the steps of erecting are desirably the swinging of the outer end walls **4** to an upright position shown in Fig. 2 and with the top spacer members **16**, inner end walls **15** and the bottom spacer members **19** in upright position. The corner flaps **6** are bent upwardly at the same time. The collapsed outer and inner side walls are then swung first to generally angular position relative to the outer and inner end walls and the outer and inner side walls are then swung to erected position as shown in Fig. 3 and the corner flaps engaged with the end walls.

The erecting of the parts to the position shown in Figs. 1, 2, 3 and 4 may be varied in that the inner and outer side walls may be first swung to erected position and the outer end walls erected and the flaps engaged. From the position shown in Figs. 3 and 4 the bottom spacer members **19** are swung inwardly on their hinging connection **20** as shown in Fig. 5 at right angles to the inner end walls **15** and in this general position the inner end walls are swung inwardly on their hinging connection **24** to the top spacer member **16** until they are directed generally in an inwardly inclined position as shown in Fig. 6. The top spacer members **16** are then swung inwardly on their hinging connections **25** to the outer end walls and simultaneously with such movement the inner end walls are swung downwardly and outwardly until the edge of the bottom spacer member **19** engages the outer end walls at or adjacent the bottom thereof as shown in Fig. 7. The continued downward movement of the top spacer member **16** engages the shoulders or lugs **22** with the lugs **21**. The beveled edges **23** facilitate this engagement. The box is thus completely erected and the parts are securely interlocked providing a very rigid double walled structure.

The ends of the end top spacer members **16** overlap the ends of the side top spacer members **13**. It will be noted that the sealing strips **17** extend to the hinging scores **5** connecting the end walls **4** to the bottom. The spacer flaps **19** are of such length that when the parts are in erected position the end edges of the bottom spacer flaps **19** abut the inner edges of the sealing flaps **17**. This further serves as a guide for the parts when they are swung to final erected position either manually or by machine. While the interlocking flaps for the outer side and end walls illustrated are desirable the steps of the method

may be practiced with other forms of interlocks for the outer end walls.

I have not illustrated such other modifications in the interlock of the outer walls which I contemplate as it is believed this disclosure will enable those skilled in the art to embody or adapt my invention as may be desired.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. The method of erecting a double walled box formed of an integral blank and comprising outer side and end walls hingedly connected to the side and end edges of the bottom, the outer side and end walls having inner side and end walls hingedly joined to the top edges thereof by top spacer members of substantial width, the inner side and end walls being shorter than the corresponding outer walls by approximately the width of the top spacer members, the inner side walls being provided with sealing flaps on their longitudinal edges secured to the bottom with the inner and outer side walls in parallel relation when erected and permitting collapsing thereof, the end edges of the inner side walls being stepped to provide downwardly facing shoulders, the end edges of the inner end walls being stepped to provide upwardly facing shoulders engageable with said downwardly facing shoulders of the inner side walls, their edges below the shoulders being inwardly inclined to facilitate springing engagement of the shoulders, the inner end walls terminating in hinged bottom spacer members of a length corresponding to the distance between the inner edges of the sealing flaps on the inner side walls to lie between and abut the same when in erected position and of a width to hold said shoulders of the inner side and end walls in interlocking engagement, the outer side walls having corner flaps co-engageable with the outer end walls, comprising the steps of swinging the outer end walls to erected position with the top spacer members and inner end walls in upstanding relation to the outer end walls, and swinging the outer and inner side walls to erected position and engaging the corner flaps of the outer side walls with the outer end walls, swinging the bottom spacer members on said inner end walls inwardly at an angle with respect thereto, swinging the inner end walls and the bottom spacer members carried thereby inwardly on the hinging connections for the inner end walls to the top spacer members to angular inwardly and downwardly inclined relation relative to each other and to the top spacer members and to a position between the inner side walls with the upwardly facing shoulders on the inner end walls disposed outwardly of the ends of the inner side walls and above the downwardly facing shoulders thereon, and thereafter swinging the top end spacer members downwardly and thus swinging the inner end walls and the bottom spacer members carried thereby downwardly and toward the outer end walls until the bottom edges of the bottom spacer members engage the outer end walls adjacent their hinging connections to the bottom and pressing downwardly on the top spacer members on the end walls to cause the bottom spacer members to swing about their outer edges abutted against the outer end walls thus swinging the bottoms of the inner end walls inwardly of the box until the shoulders at the ends of the inner side and inner end walls engage.

2. The method of erecting a double walled box formed of an integral blank and comprising a bottom, outer side and end walls extending from the side and end edges of the bottom, the outer side and end walls having inner side and end walls swingably joined to the top edges thereof by top spacer members of substantial width, the inner side and end walls being shorter than the corresponding outer walls by approximately the width of the top spacer members, the inner side walls being provided with sealing flaps on their longitudinal edges secured to the bottom, the end edges of the inner side walls being stepped to provide downwardly facing shoulders, the end edges of the inner end walls being stepped to provide upwardly facing shoulders coacting with said downwardly facing shoulders of the inner side walls, the inner end walls terminating in hinged bottom spacer members of a width to hold the said shoulders of the inner side and end wall members in interlocking engagement, the outer side and end walls having interlockingly engaged parts when in erected position, comprising the steps of swinging the outer end walls and the outer and inner side walls to erected position with the top spacer members of the end walls and inner end walls in upstanding relation to the bottom and engaging the interlocking outer wall parts, swinging the inner end walls and the bottom spacer members carried thereby inwardly on the hinging connections for the inner end walls to the top end spacer members to angular inwardly and downwardly inclined relation relative to each other and to the top spacer members and to a position between the inner side walls and thereafter swinging the inner end walls with the upwardly facing shoulders on the inner end walls disposed outwardly of the ends of the inner side walls and above the downwardly facing shoulders thereon, and the bottom spacer members carried thereby toward the outer end walls until the bottom spacer members engage the outer end walls at their juncture to the bottom and pressing downwardly on the top spacer members of the end walls to cause the bottom spacer members to swing about their outer edges abutted against the outer end walls thus swinging the bottoms of the inner end walls inwardly of the box until the shoulders at the ends of the inner side and inner end walls engage.

3. The method of erecting a doubled walled box formed of an integral blank and comprising a bottom, outer side and end walls extending from the side and end edges of the bottom, the outer side and end walls having inner side and end walls swingably joined to the top edges thereof by top spacer members of substantial width, the inner side and end walls being shorter than the corresponding outer walls by approximately the width of the top spacer members, the bottom edges of the inner side walls being hingedly secured to the bottom, the end edges of the inner side walls being stepped to provide downwardly facing shoulders, the end edges of the inner end walls being stepped to provide upwardly facing shoulders coacting with said downwardly facing shoulders of the inner side walls, the inner end walls terminating in hinged bottom spacer members of a width to hold the said shoulders of the inner side and end wall members in interlocking engagement, the outer side and end walls having interlockingly engaged parts when in erected position, comprising the steps of swinging the outer and inner side walls and outer end walls to erected position and engaging the interlocking outer wall parts with the top end wall spacer members and inner end walls in upstanding relation to the bottom, swinging the inner end walls and the bottom spacer flaps carried thereby inwardly on the hinging connections for the inner end walls to the top spacer members to angular inwardly and downwardly inclined relation relative to each other and to the top spacer members and to a position between the inner side walls with the upwardly facing shoulders on the inner end walls disposed outwardly of the ends of the inner side walls and above the downwardly facing shoulders thereon, and then swinging the top end spacer members downwardly while swinging the inner end walls and the bottom spacer members carried thereby toward the outer end walls until the bottom spacer members engage the outer end walls and pressing downwardly on the top end spacer members to cause the bottom spacer members to swing about their outer edges abutted against the outer end walls thus swinging the bottoms of the inner end walls inwardly of the box until the coacting shoulders on the inner side and inner end walls engage.

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