April 13, 1965 J. D. RIDGEWAY, JR 3,178,094

CONTAINER FORMED FROM NESTED BLANKS

Filed July 31, 1963 2 Sheets-Sheet 1

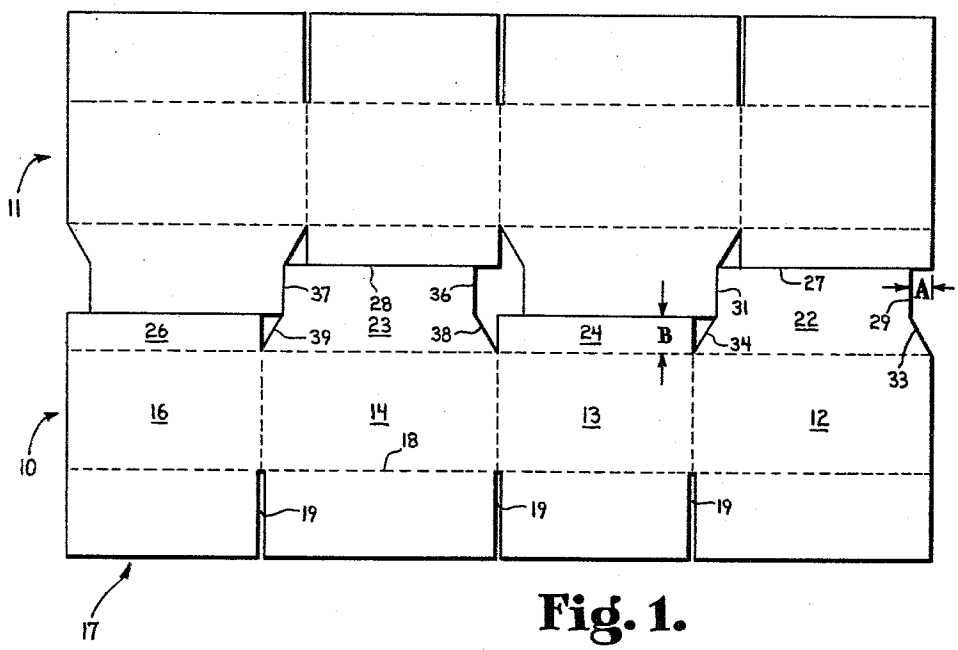


Fig. 1.

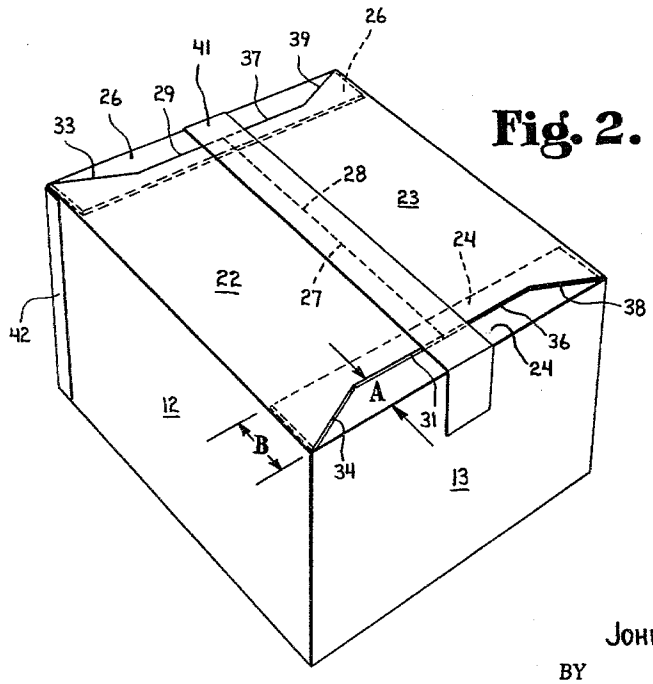


Fig. 2.

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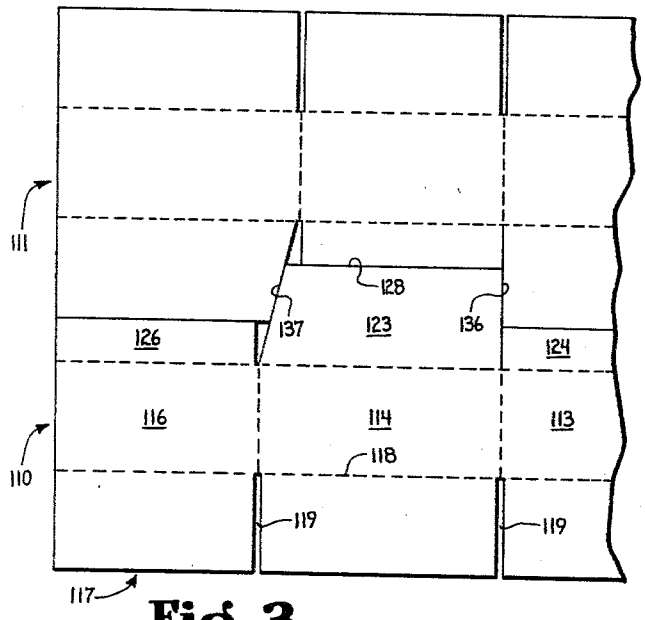


Fig. 3.

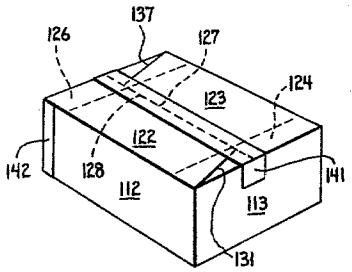


Fig. 4.

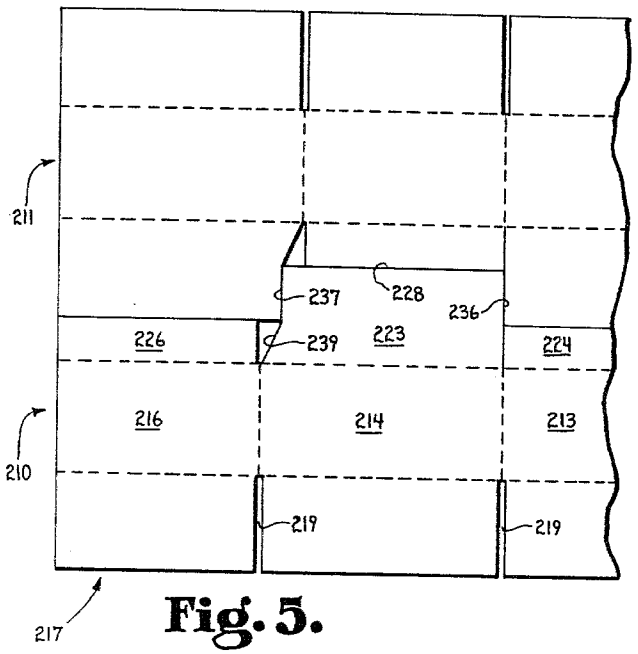


Fig. 5.

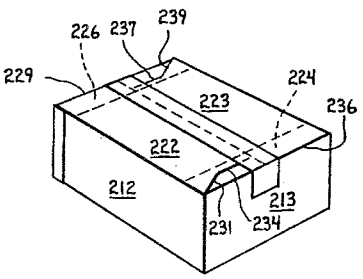


Fig. 6.

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CONTAINER FORMED FROM NESTED BLANKS

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6 Claims. (Cl. 229—37)

This invention relates generally to containers formed of corrugated board or the like and in particular to containers which permit a high degree of nesting of the blanks from which the containers are formed and which, nevertheless, can be closed and sealed by conventional automatic equipment used for this purpose.

Carton or container design, particularly that of specialized type often results in the end flaps along at least one side of the container blank being of different length. Because of the possibility of conserving board, attempts have been made in the past to nest the flaps of unequal length in cutting the container blanks from sheets of corrugated board or the like. U.S. Patent 2,367,717 discloses typical structures of the type referred to. The containers resulting from nesting blanks have, in the past, been characterized by a center joint (that is, the line or junction or abutment of the two top flaps) which is not rectilinear or, if straight, is not parallel to the side panels of the container. These non-rectilinear and inclined center joints on the containers make it difficult or impossible to process the containers through conventional, automatic closing and taping or sealing equipment.

It is the primary object of the present invention to provide a container formed from a container blank, which has its end flaps arranged so that they will nest with the end flaps of an adjacent container blank, thereby permitting blanks to be cut from a continuous sheet of material with a minimum of scrap and resulting in a rectilinear center joint which is parallel to the side panels of the container and therefore acceptable in conventional closing and sealing equipment.

This and other objects will become apparent as the description proceeds with reference to the accompanying drawings in which:

FIG. 1 is a top plan view of the blank from which the container embodying the present invention is formed and showing nested therewith in end-to-end relation a duplicate blank.

FIG. 2 is a perspective view of a container embodying the present invention.

FIG. 3 is a fragmentary view of a blank from which a modified form of the container can be formed.

FIG. 4 is a perspective view of a modified container formed from the blank of FIG. 3.

FIG. 5 is a fragmentary view of a blank from which a further modified form of the container can be formed.

FIG. 6 is a perspective view of a modified container formed from the blank of FIG. 5.

Referring to the drawings, the container is formed from a blank indicated generally at 10. A nested duplicate blank is indicated at 11 in FIG. 1. Referring specifically to the container blank 10, this blank includes a side panel 12, an end panel 13, a further side panel 14, and a further end panel 16. Bottom closure end flaps, indicated generally at 17 extend from the lower margin, defined by the score line 18, of the side and end panels. These bottom closure flaps 17 are separated by conventional slots 19 and are folded in overlapping relation to form the bottom wall of the container in conventional fashion.

Extending from the other margin (defined by the score line 21) of the end and side panels are top closure end flaps. The top closure end flap 22 extends from the side panel 12 and a top closure end flap 23 extends from the

other side panel 14, the flap 23 being a duplicate in configuration of the flap 22. Extending from the end panel 13 is a top closure end flap 24, and a duplicate top closure end flap 26 extends from the end panel 16.

The end margin of the end flap 22 is defined by the straight line 27 and the end margin of the flap 23 is defined by the line 28. The side margins of the end flap 22 are defined by lines 29 and 31 which are normal to the end margin 27 of the flap and extend for a portion of the width of the side panel end flap 22. These side margin portions 29 and 31 are inset from the extension of the adjacent margin of the side panel 12, the amount of this inset being indicated at A in FIG. 1. The side margin portion 31 has, of course, an identical inset from the extension of the score line defining the junction between the side panel 12 and the end panel 13. The side panel end flap margins for the end flap 22 are completed on a line 33 extending diagonally from the lower end of the line 29 to the margin of the adjacent side panel 12. An identical, diagonal line 34 extending from the inner end of the line 31 to the junction of the side panel 12 and the end panel 13 completes the opposite side margin of the flap 22. Similarly lines 36 and 37, normal to the end margin 28 of the flap 23, form a portion of the side margins of the flap 23. The side margins of the flap 23 are completed by the diagonal lines 38 and 39.

The end panel top closure flaps 24 and 26 are rectangular in configuration with their width dimension being indicated at B in FIG. 1. For reasons that will become apparent with the description of FIG. 2, the width B of the closure flaps 24 and 26 must be greater than the amount of inset A of the closure flaps 22 and 23.

As previously mentioned, the blank indicated at 10 and just described in detail is die-cut from a continuous sheet of material and, because of the configuration of the end flaps, permitting them to be nested as shown in FIG. 1, a duplicate blank 11 may also be cut from the sheet.

The container embodying the present invention is set up from the blank described with reference to FIG. 1 in the fashion indicated in FIG. 2. The end margins 27 and 28 of the end flaps 22 and 23 meet in abutting relation when the container is closed to form a rectilinear center joint across the top of the container which is parallel to the container side panels 12 and 14. The end panel closure flaps 24 and 26 are folded under the flaps 22 and 23 and since their width B is greater than the inset A of the side margins of the flaps 22 and 23, the flaps 24 and 26 extend, as indicated in FIG. 2, in underlying, lapping relation to the outer flaps 22 and 23. Any suitable means such as tape 41 may be utilized to seal the center joint of the container. The margins of the flaps 22 and 23 might, for example, be formed to provide tabs which interlock when the flaps are closed to augment or replace the sealing means 41. The free margin of the side panel 12 and the adjacent free margin of the end panel 16 are joined in conventional fashion to form a manufacturer's joint sealed by tape or other suitable means as indicated at 42 in FIG. 2.

Referring now to FIGS. 3 and 4, a modified form of the structure will be described. Parts having similar counterparts in FIGS. 1 and 2 are given the same reference numerals in FIGS. 3 and 4 as in FIGS. 1 and 2 but with the prefix 1. The primary difference in the structure of FIGS. 3 and 4 over that of FIGS. 1 and 2 is the configuration of the end margins 136 and 137 of the side panel top closure flap 123 and the end margins 129 and 131 of the identical top closure flap 122. The flap margin 137 extends on an inclined line from the base of the flap 126 to the side margin 128 of the flap 123. Similarly the flap margin 131 extends diagonally from the base of flap 124 to the side margin 127 of the flap 122. The opposite end margins of the top closure flaps 123 and

122 are normal to the side margins 128 and 127 of their respective closure flaps 123 and 122.

The modified form of the container may be set up as shown in FIG. 4 with the flaps 124 and 126 underlying the top closure flaps 122 and 123. Tape 141 may be utilized to seal the center joint of the container and this center joint is rectilinear and parallel to the sides of the container so that conventional machinery can be utilized in closing and sealing the container.

Referring to FIGS. 5 and 6, a further modified form will be described. In FIGS. 5 and 6, parts having similar counterparts in FIGS. 1 and 2 will be given the same reference numerals as in FIGS. 1 and 2 but with the prefix 2. The primary difference in the structure of FIGS. 5 and 6 over that of FIGS. 1 and 2 is the straight margins 326 and 229 of the top closure flaps 223 and 222, respectively, as compared to margins 36 and 38 of FIGS. 1 and 2. The opposite side margins of the flaps 223 and 222 are defined by edges 239 and 237 for flap 223 and edges 234 and 231 for flap 222, these margins being inclined similarly to margins 39–37 of FIG. 1.

This modified form of the container may be set up as shown in FIG. 6 with flaps 224 and 226 underlying the top closure flaps 222 and 223. Tape 241 may be utilized to seal the center joint of the container and this center joint is rectilinear and parallel to the sides of the container so that, as in the other embodiments of the invention, conventional machinery can be utilized in closing and sealing the container.

It is to be understood that the terms "side," "end," "top," and "bottom" are used herein to facilitate the description of the container and are not to be construed as limiting either the shape or position which the container must assume.

While the invention has been disclosed and described in some detail in the drawings and foregoing description, they are to be considered as illustrative and not restrictive in character, as other modifications may readily suggest themselves to persons skilled in this art and within the broad scope of the invention, reference being had to the appended claims.

The invention claimed is:

1. A rectangular container of greater length than width having opposed side panels and opposed end panels, bottom closure flaps extending from one margin of said panels and folded in overlapping relation to form the bottom wall of the container, top closure flaps extending from the other margin of said panels, said side panel top closure flaps having their end margins abutting when the container is closed to form a rectilinear center joint across the top of the container which is parallel to the container side panels, said side panel top closure flaps each having side margins defined by a line normal to their end margins and extending for a portion of the width of the side panel top closure flap and inset from the adjacent end panels an amount substantially equal to one-half the difference between the length and the width of the rectangular container, said side panel top closure flap margins being completed on a line extending diagonally to the adjacent end and side panel junction, said end panel top closure flaps underlying said side panel top closure flaps and having a width greater than the amount of said inset of said side panel top closure flap side margins but less than the width of said side panel top closure flaps.

2. A rectangular container of greater length than width having opposed side panels and opposed end panels, bottom closure flaps extending from one margin of said panels and folded in overlapping relation to form the bottom wall of the container, top closure flaps extending from the other margin of said panels, said side panel top closure flaps when the container is closed forming a rectilinear center joint across the top of the container which is parallel to the container side panels, said side panel top closure flaps each having side margins

defined by a line normal to their end margins and extending for a portion of the width of the side panel top closure flap and inset from the adjacent end panels an amount substantially equal to one-half the difference between the length and width of the rectangular container, said side panel top closure flap margins being completed on a line extending diagonally to the adjacent end and side panel junction, said end panel top closure flaps underlying said side panel top closure flaps and having a width greater than the amount of said inset of said side panel top closure flap side margins but less than the width of said side panel top closure flaps.

3. A rectangular container of greater length than width having opposed side panels and opposed end panels, bottom closure flaps extending from one margin of said panels and folded in overlapping relation to form the bottom wall of the container, top closure flaps extending from the other margin of said panels, said side panel top closure flaps having their free end margins abutting when the container is closed to form a rectilinear center joint across the top of the container which is parallel to the container side panels, said side panel top closure flaps being shorter at their free-end margins than at their marginal junction with their corresponding side panels by an amount substantially equal to one-half the difference between the length and the width of the rectangular container and thereby inset at their free-end margins from the adjacent end panels, said end panel top closure flaps underlying said side panel top closure flaps and having a width at least equal to the amount of said inset of the side panel top closure flap side margins but less than the width of said side panel top closure flaps.

4. A rectangular container of greater length than width having opposed side panels and opposed end panels, bottom closure flaps extending from one margin of said panels and folded in overlapping relation to form the bottom wall of the container, top closure flaps extending from the other margin of said panels, said side panel top closure flaps when the container is closed forming a center joint across the top of the container which is parallel to the container side panels, said side panel top closure flaps being shorter at their free-end margins than at their marginal junction with their corresponding side panels by an amount substantially equal to one-half the difference between the length and the width of the rectangular container and thereby inset at their free-end margins from the adjacent end panels, said end panel top closure flaps underlying said side panel top closure flaps and having a width at least equal to the amount of said inset of the side panel top closure flap side margins but less than the width of said side panel top closure flaps.

5. A rectangular container of greater length than width having opposed side panels and opposed end panels, bottom closure flaps extending from one margin of said panels and folded in overlapping relation to form the bottom wall of the container, top closure flaps extending from the other margin of said panels, said side panel top closure flaps having their free end margins abutting when the container is closed to form a rectilinear center joint across the top of the container which is parallel to the container side panels, said side panel top closure flaps being shorter at their free-end margins than at their marginal junction with their corresponding side panels by an amount substantially equal to one-half the difference between the length and the width of the rectangular container and thereby having at least one end of their free-end margins inset from the adjacent end panel, said end panel top closure flaps underlying said side panel top closure flaps and having a width less than the width of said side panel top closure flaps.

6. A rectangular container of greater length than width having opposed side panels and opposed end panels, closure flaps extending from one margin of said panels,

said side panel closure flaps when the container is closed forming a center joint across the container which is parallel to the container side panels, said side panel closure flaps being shorter at their free-end margins than at their marginal junction with their corresponding side panels by an amount substantially equal to one-half the difference between the length and the width of the rectangular container and thereby having at least one end of their free-end margins inset from the adjacent end panel, said end panel closure flaps underlying said side panel closure flaps and having a width less than the width of said side panel closure flaps.

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