Sept. 25, 1956 R. L. WHITE 2,764,336

CONTAINER STRUCTURE

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Fig. 1.

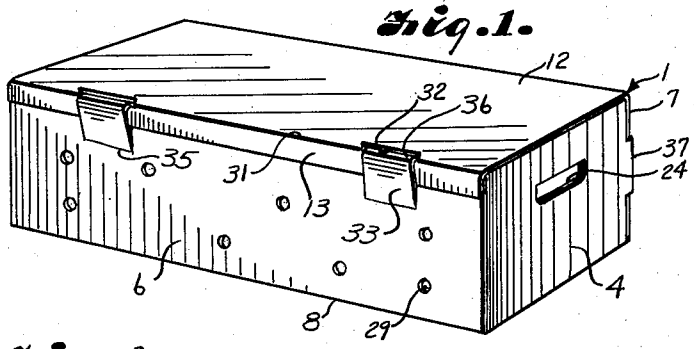
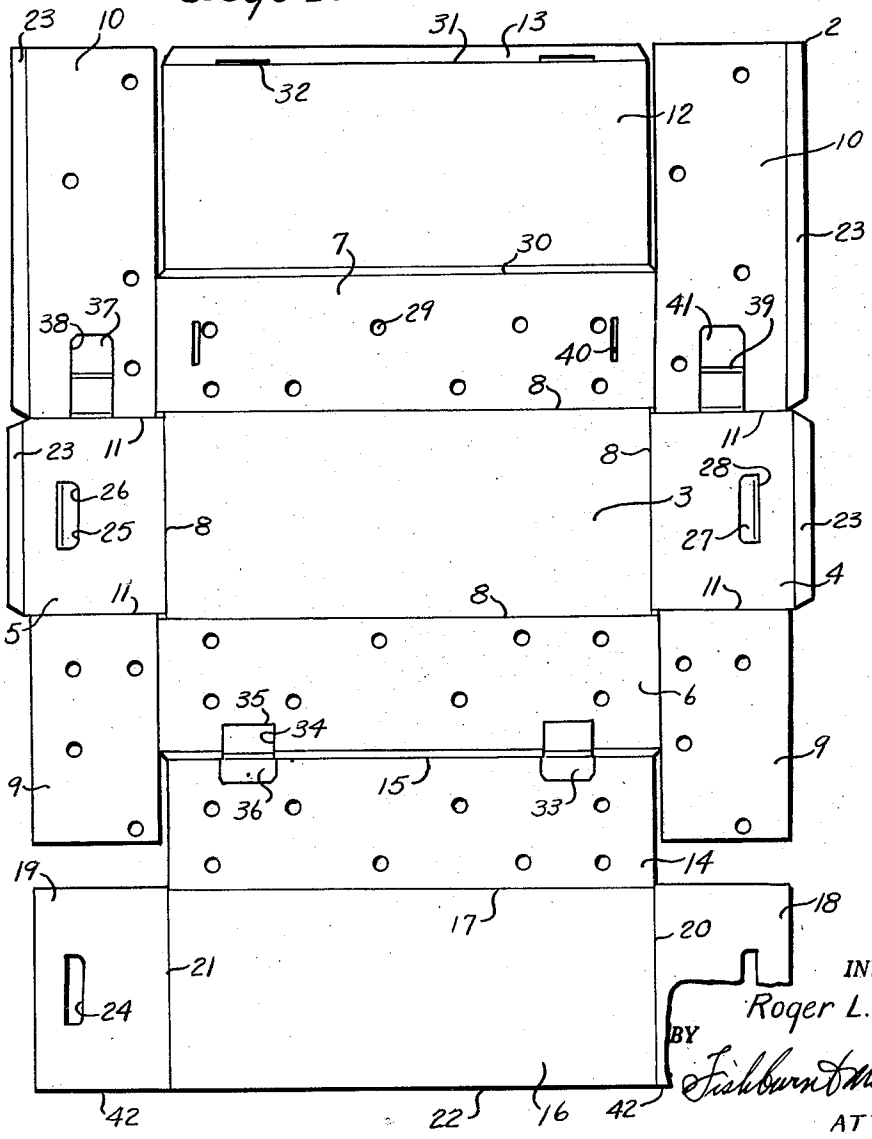


Fig. 2.



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Fig. 3.

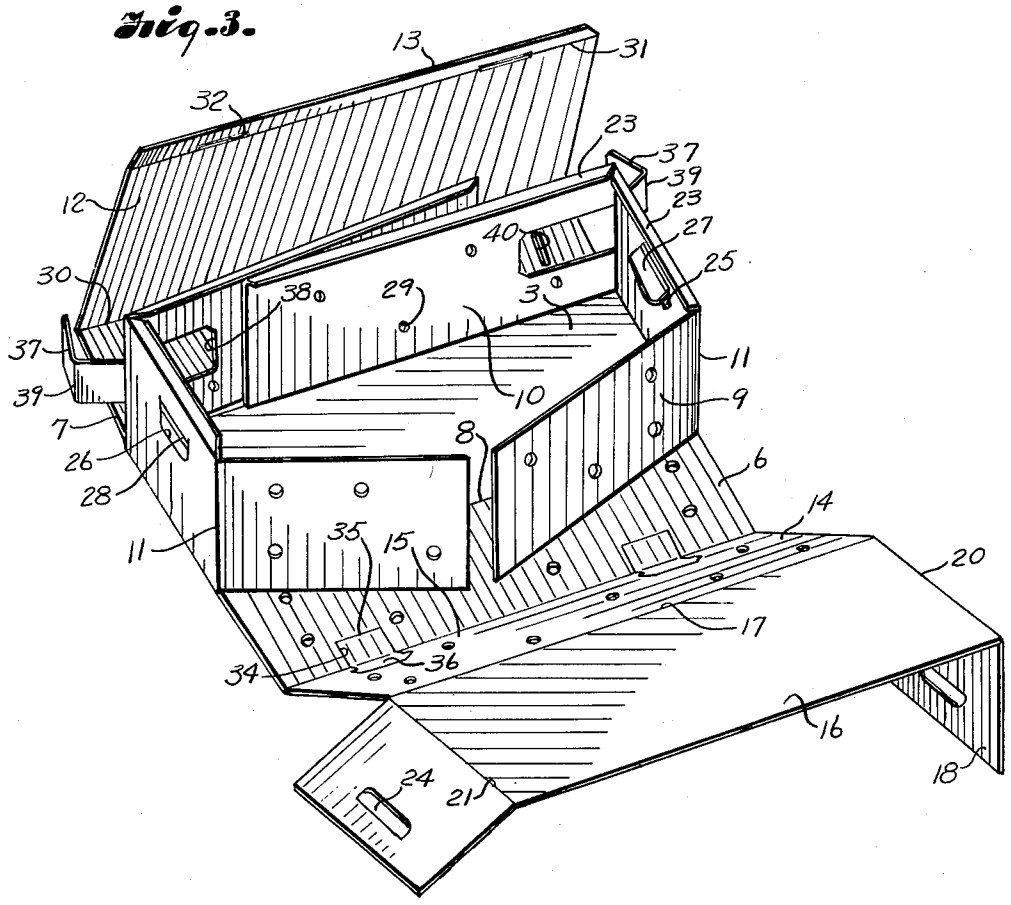
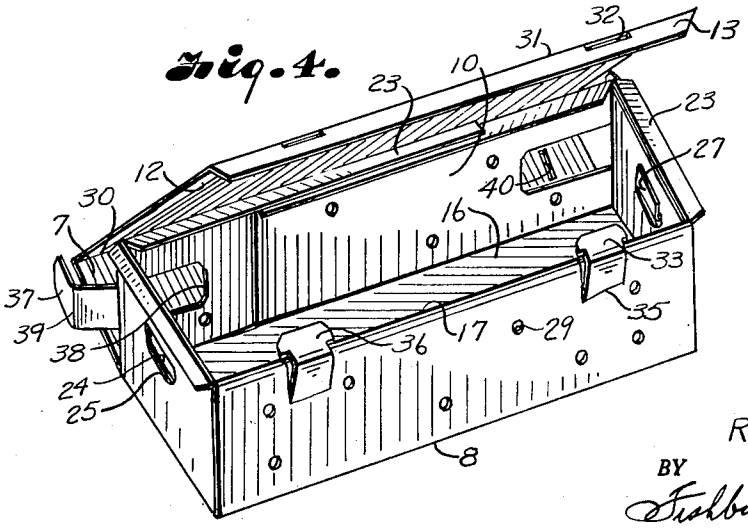


Fig. 4.



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Fig. 5.

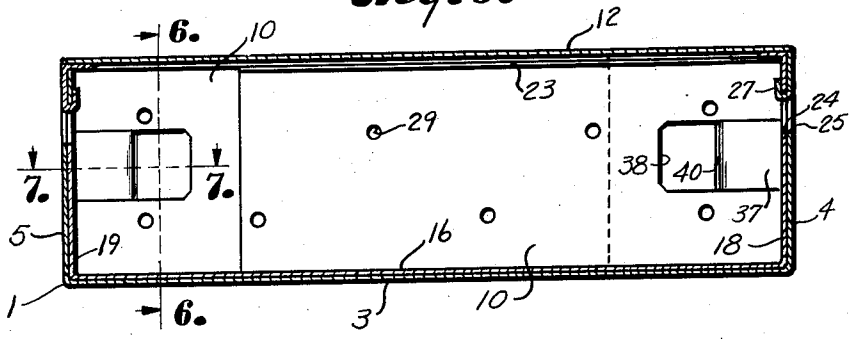


Fig. 6.

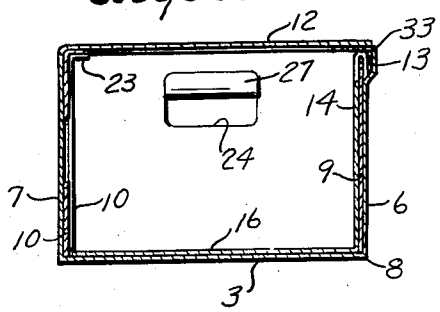


Fig. 7.

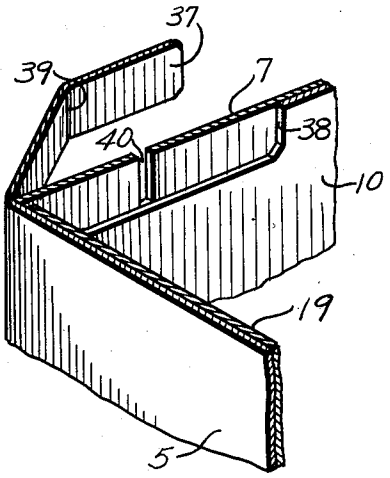
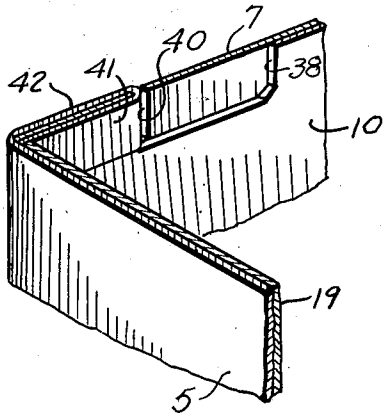


Fig. 8.



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CONTAINER STRUCTURE

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Application March 22, 1954, Serial No. 417,574

4 Claims. (Cl. 229—36)

This invention relates to containers such as cartons or boxes and more particularly to a container constructed of corrugated fiber and like board for shipment of meat and other heavy products, and has for its principal object to provide a container and integral closure therefor formed from a single blank and assembled into a multiple wall structure without the use of stitching, tape or like fasteners.

Further objects of the present invention are to provide a novel container and closure formed from a single sheet of fiberboard which, when assembled, forms a structure of increased strength for stacking and increased end and side compression as well as corner strength without materially increasing the cost of the container or the material required in its construction; to provide a container with an integral cover and interengaging parts holding same together in a rigid condition; to provide a container formed of a single sheet of material which when folded to erected condition provides substantially triple thickness in the side walls, double thickness in the end and bottom walls, single thickness cover and flanges on selected upper edges of said walls for added rigidity thereof; to provide locking tabs that are cut from various wall portions without increasing the size of the necessary blank; and to provide a container and integral closure that may be shipped knocked down and erected at the point of use, that is economical to manufacture with substantially no waste of material, yet providing a very strong structure which resists crushing and is adapted for shipment of meats and other heavy products without the use of wood and like reinforcing.

In accomplishing these and other objects of the present invention I have provided improved details of structure, the preferred forms of which are illustrated in the accompanying drawings, wherein:

Fig. 1 is a perspective view of a closed container constructed in accordance with the present invention.

Fig. 2 is a plan view of a blank from which the container is formed.

Fig. 3 is a perspective view of the container in partially erected condition.

Fig. 4 is a perspective view of the container with the rear wall structure being erected.

Fig. 5 is a longitudinal sectional view through the erected container.

Fig. 6 is a transverse sectional view through the container on the line 6—6, Fig. 5.

Fig. 7 is an enlarged partial perspective view taken on the line 7—7, Fig. 5, showing the rear side lock with the locking tab disengaged from the cooperating portions of the container.

Fig. 8 is an enlarged partial perspective view similar to Fig. 7 with the rear side lock in operative position.

Referring more in detail to the drawings:

1 designates a container preferably formed from a single blank 2 of fiber or like board, of a type which tends to retain its strength and stiffness while moist or wet. The container has a bottom wall 3 provided with

upwardly extending end walls 4 and 5 and side walls 6 and 7, the blank 2 being suitably scored or creased as at 8 to provide fold line hinge connections which facilitate the upward bending of the side and end walls along the proper lines. The end walls 4 and 5 each have side flaps 9 and 10 that fold on score lines or creases 11 adjacent to the corners of the container whereby said side flaps overlap the side walls 6 and 7. The side flaps 9 are positioned inside of the front side wall 6 with each of said side flaps 9 preferably slightly less than half the length of the side wall 6. The side flaps 10 are positioned inside of the rear side wall 7 and in the illustrated structure said side flaps 10 are approximately three-fourths the length of the side wall 7 whereby the inner portions of the flaps 10 overlap to provide a double thickness in the overlapped portion. Each of the side flaps 10 is of a length substantially equal to the combined height of the side wall 7 and width of the cover 12 and flap 13 on said cover so there is no waste of fiberboard at that end of the blank.

A front side wall or inner liner 14 extends from the front side wall 6 and is adapted to fold on a double score line or hinge connection 15 adjacent the upper edge of said side wall 6 whereby the side inner wall 14 folds over the side wall 6 and engages the inner surfaces of the side flaps 9. A bottom inner liner 16 extends from the front side inner liner or wall 14 on the opposite edge thereof from the side wall 6, the bottom liner being of such size as to overlie and cover the bottom wall when the container is folded as illustrated in Figs. 3 and 4. The bottom liner folds relative to the side inner wall or liner 14 on a score line or crease 17. End liners 18 and 19 fold upwardly from the ends of the bottom liner 16 on score or crease lines 20 and 21 whereby the end liners 18 and 19 are substantially coextensive with the end walls 4 and 5 respectively and lie inside of and substantially engage said end walls to provide a double thickness at the ends of the container.

The bottom liner 16 cooperates with the bottom wall 3 to provide a double thickness at the bottom of the container. The side edge 22 of the bottom liner 16 opposite from the side inner wall or liner 14 engages the inner surface of the adjacent side flap 10 and holds said side flaps against the side wall 7. The side flaps 10 and end walls 4 and 5 have inturned flanges 23 on the upper edges to stiffen same. The end liners 18 and 19 have handhold openings 24 and the end walls 4 and 5 have registering openings 25 formed by U-shaped cuts 26 which form tongues 27 extending from score lines 28 whereby said tongues are folded inwardly through the openings 24 and then upwardly to give greater area for gripping the container in lifting same.

Ventilation openings 29 are arranged in the side walls, side liners and side flaps and other walls and liners as desired whereby said openings register when the container is assembled for circulation of air through the container as when meat or the like is frozen in the container.

The cover 12 extends from the upper edge of the side wall 7 and folds on a score line 30 to overlie the top edges of the front and ends of the container. The flange 13 is on the opposite side of the cover 12 from the side wall 7 and folds on a score line 31 downwardly exteriorly of the front side wall 6. The flange 13 has spaced longitudinal slots 32 adjacent the score line 31 for receiving tongues 33 that are formed by U-shaped cuts 34 in the front side wall 6 and front side liner 14. The tongue 33 extends upwardly from score lines 35 in the side wall 6 exteriorly of the flange 13 and the score lines 15 extend transversely of the tongues whereby the upper portion 36 of the tongues is bent inwardly and inserted into the slots 32. The upper portion 36 of the tongues is

preferably slightly wider than the slots are long to provide a locking engagement that tends to hold the tongues in the slots.

Locking tongues or tabs **37** are formed in each of the side flaps **10** and extend longitudinally thereof from the score lines **11**. The tongues or tabs **37** are preferably midway the height of the side flaps and are formed by U-shaped cuts **38** and have vertical score lines **39** across said tabs substantially midway the length thereof. Vertical slots **40** are arranged in the side wall **7** and spaced from the end edges thereof a distance corresponding to the spacing between the score lines **11** and **39** whereby the tongues or tabs **37** are folded exteriorly of the side wall **7**, inserted into the slots **40** and the end portion **41** of said tabs turned on the score lines **39** toward the adjacent end walls. The end portions **41** of the tongues or tabs lie in the cutout in the side flaps formed by the cutting of the tabs **37** and the free ends of said end portions **41** extend between the side edge **42** of the end liners and the side wall **7**. This engagement holds the tabs in locking position.

The container may be shipped flat to any desired point of use. Then the container is erected as illustrated in Figs. 3 and 4. The end walls **4** and **5** are turned upwardly relative to the bottom wall **6** on the score lines **8**. The side flaps **9** and **10** are then folded inwardly on the score lines **11**, the locking tabs being pushed from the U-shaped cuts **38** whereby said tabs extend outwardly from the end walls **4** and **5**. The front side wall **6** is then turned upwardly into engagement with the outer surfaces of the side flaps **9**. The tongues **33** are then pushed from the cut portions so they remain upstanding and the front side inner wall or liner folded inwardly on the fold lines **15** to extend downwardly in engagement with the inner surfaces of the respective side flaps **9** and simultaneously the bottom liner **16** is folded on the score line **17** and the end liners **18** and **19** folded on the score lines **20** and **21** whereby the bottom liner overlies the bottom wall **3** and the end liners **18** and **19** lie on the inside of and substantially engage the inner surfaces of the end walls **4** and **5**. This positions the edge **22** of the bottom liner in engagement with the inner surface of a side flap adjacent the bottom thereof to prevent inward swinging thereof. The portions **27** are pushed inwardly to fold same on the score lines **28** whereby said portions extend into the handhold openings **24** and are then turned upwardly to substantially lie against the inner surfaces of the end liners **18** and **19**. The rear side wall **7** is then turned upwardly on its respective score line **8** into engagement with the side flaps **10** and the tabs **37** are folded around the adjacent corner and the end portion **41** of said tabs inserted through the slots **40** in the rear side wall **7**, and folded on the score lines **39** whereby the free ends of said end portions **41** lie in the cutouts of the side flaps **10** with said free ends positioned between the adjacent edges **42** of the end liners **18** and **19** and the side wall **7** as illustrated in Fig. 8. This arrangement of the locking tabs cooperates with the engagement of the bottom liner and the side flaps **10** to hold said side flaps and the wall **7** in erected position.

The container is then a structure having substantially triple thickness in the side walls and double thickness in the end and bottom walls and is ready to receive meat or other products adapted to be placed in the container. After the products are placed in the container the cover **12** is folded on its score line **30** to overlie the top of the container and the flange **13** turned downwardly exteriorly of and in engagement with the side wall **6**, said flange **13** being inwardly of the locking tongues **33**. The portion **36** of the locking tongues is then inserted into the slots **32** to close the container, which is then ready to be placed in storage or shipment as desired.

Since no tapes, staples or stitching is used in assembling or closing of the container the blanks may be shipped or stored in flat condition either before or after use. Also during use the sides and ends cooperate to add vertical strength to the entire structure whereby it is very strong and adapted to contain meat or other heavy products without the use of wood strips or like reinforcing and yet may be stacked without danger of crushing the sides and end walls of the container.

It is believed obvious that I have provided a strong container structure of great strength that is economical to manufacture with substantially no waste of material and that can be easily assembled and used without auxiliary fastening means such as staples, tape, stitching and the like.

What I claim and desire to secure by Letters Patent is:

1. A container of the character described folded from a blank and including, a bottom wall, side and end walls having fold line hinge connections to the bottom wall and extending upwardly therefrom, side flaps having fold line end connections with the end walls and extending inwardly from said end walls in overlying relation to the side walls, a side liner having fold line hinge connection with the upper edge of one of the side walls and extending inwardly and downwardly therefrom in overlying relation to the adjacent side flaps, a bottom liner having fold line hinge connection with said side liner and overlying the bottom wall with the side edge of the bottom liner remote from said side liner engaging the side flaps which overlie the other side wall, tongues cut from the side flaps that overlie said other side wall and extending from the end walls exteriorly of said other side wall, said other side wall having slots parallel to and spaced from the fold line hinge connections between the end walls and side flaps, end liners having fold line hinge connection with the bottom liner and extending upwardly therefrom in engagement with the end walls, said end liners each having an edge substantially engaging the side flaps which overlie said other side wall whereby the tongues extend from the end walls over the outer surface of said other side wall and through the slots in said other side wall, end portions on the tongues turned back toward the adjacent end wall and engaging the inner face of said other side wall and lying in the cutout portions of the adjacent side flaps with the free ends of said tongue end portions engaging between the edges of the adjacent end liners and the inner face of said other side wall whereby said edges of the adjacent end liners and inner face of said other side wall cooperate to hold the tongue in position to retain said other side wall and end wall in folded condition, a cover member having fold line hinge connection with the upper edge of said other side wall and extending over the said one side wall, and means securing the cover in container closing position.

2. A container of the character described folded from a blank and including, a bottom wall, side and end walls having fold line hinge connections to the bottom wall and extending upwardly therefrom, side flaps having fold line end connections with the end walls and extending inwardly from said end walls in overlying relation to the side walls, a side liner having fold line hinge connection with the upper edge of one of the side walls and extending inwardly and downwardly therefrom in overlying relation to the adjacent side flaps, a bottom liner having fold line hinge connection with said side liner and overlying the bottom wall with the side edge of the bottom liner remote from said side liner engaging the side flaps which overlie the other side wall, tongues cut from the side flaps that overlie said other side wall and extending from the end walls exteriorly of said other side wall, said tongues and cutouts formed thereby being spaced from the top and bottom edges of the side flaps, said other side wall having slots parallel to and spaced from the fold line hinge connections between the end walls and side flaps, end liners having fold line hinge connection with the bottom liner and extending upwardly there-

from in engagement with the end walls, said end liners each having an edge substantially engaging the side flaps which overlie said other side wall whereby the tongues extend from the end walls over the outer surface of said other side wall and through the slots in said other side wall, end portions on the tongues turned back toward the adjacent end wall and engaging the inner face of said other side wall and lying in the cutout portions of the adjacent side flaps and in the same plane as said side flaps with the free ends engaging between the edges of the adjacent end liners and the inner face of said other side wall whereby said edges of the adjacent end liners and inner face of said other side wall cooperate to hold the tongue in position to retain said other side wall and end wall in folded condition, a cover member having fold line hinge connection with the upper edge of said other side wall and extending over the said one side wall, a flange on the cover and extending downwardly therefrom in engagement with the outer face of said one side wall, inturned flanges on the upper edges of the end walls and selected side flaps for stiffening same, said inturned flanges having engagement with the under surface of the cover, the flange on the cover having tab receiving slots therein, and locking tabs cut from said one side wall and said side liner and extending upwardly over the outer face of the flange on the cover and having an end portion extending through the tab receiving slot whereby the end portion tabs engage the sides of the slots to resist withdrawal of the locking tab from the slots.

3. A fiberboard container having two walls disposed at right angles, one of said walls having an end flap that has a fold line hinge connection thereto and that engages with the inner face of the other wall, a tongue extending from the fold line hinge connection of the end flap and said one wall, said tongue being cut from said end flap in spaced relation to the top and bottom edges thereof and forming a cutout in said end flap, said tongue having a fold line spaced from and parallel to the fold line hinge connection of the end flap and said one wall, the other wall having a slot therein parallel to said fold line and spaced therefrom a distance substantially equal to the spacing of the fold lines in the tongue, said tongue extending over the outer face of said other wall and through the slot in said other wall and having an end portion defined by the fold line in the tongue which lies in the cutout portion of the end flap against the inner face of said other wall whereby said end portion is in the same plane as the end flap, and means engaging the end portion of the tongue to hold said end portion against hinging movement thereof relative to the remainder of the tongue.

4. A fiberboard container having two walls disposed at right angles, one of said walls having an end flap that has a fold line hinge connection thereto and that engages with the inner face of the other wall, a tongue midway the height of said flap and extending parallel thereof from the fold line hinge connection of the end flap and said one wall, said tongue being cut from said end flap and forming a cutout therein, said tongue having a fold line spaced from and parallel to the fold line hinge connection of the end flap and said one wall, the other wall having a slot therein parallel to said fold line and spaced therefrom a distance substantially equal to the spacing of the fold lines in the tongue, said tongue extending over the outer face of said other wall and through the slot in said wall and having an end portion defined by the fold line in the tongue which lies in the cutout portion of the end flap against the inner face of said other wall whereby said end portion is in the same plane as the end flap, and an inner liner engaging the inner face of said one wall and having an edge engaging the inner surface of the end flap, the end portion of the tongue being engaged between the said other wall and the edge of the end liner to hold said end portion against hinging movement thereof relative to the remainder of the tongue whereby said tongue retains the said one wall and other wall in assembled condition.

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