Jan. 12, 1937. A. UZELL 2,067,740

SHIPPING BOX OR CARTON

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FIG. 1.

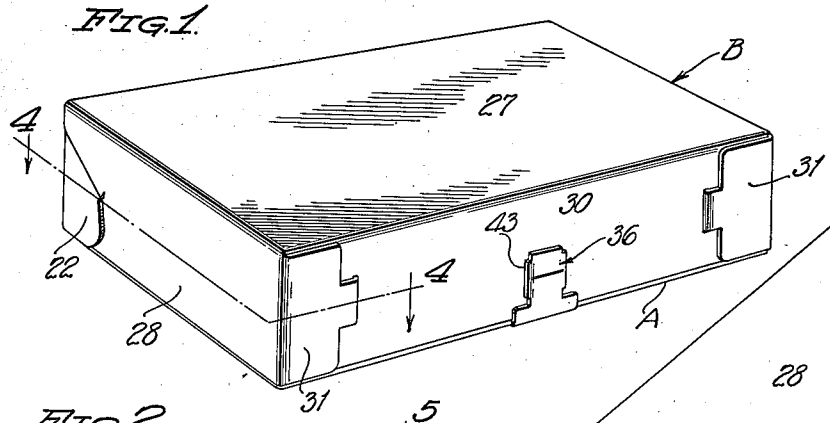


FIG. 3.

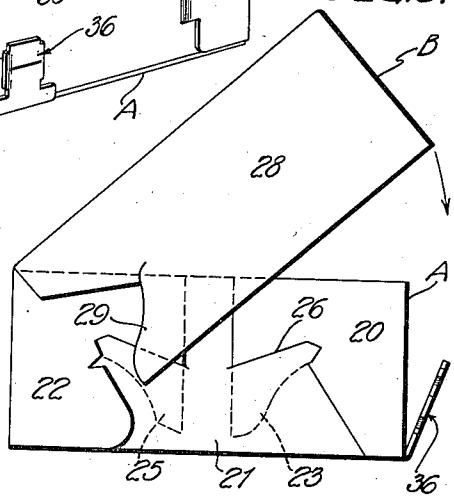


FIG. 2.

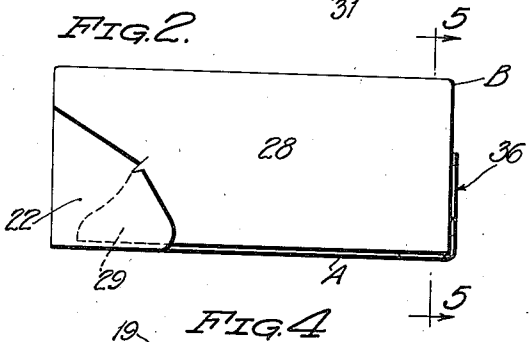


FIG. 4

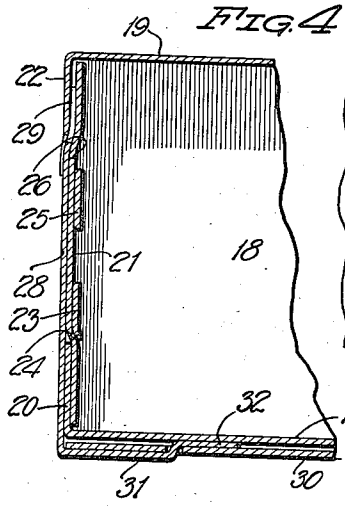


FIG. 5.

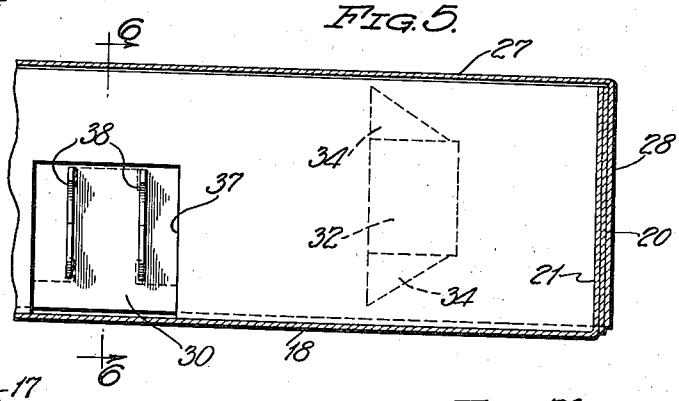


FIG. 7.

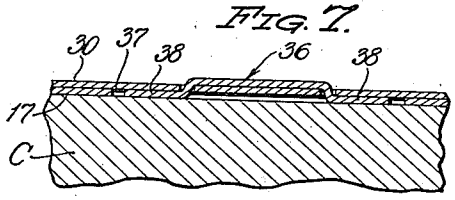
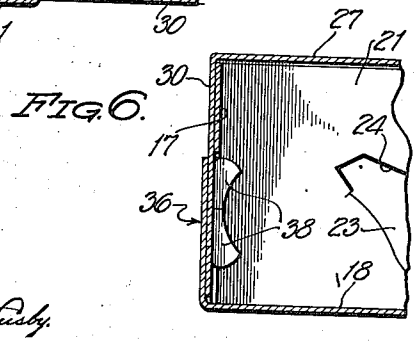


FIG. 6.



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FIG. 11.

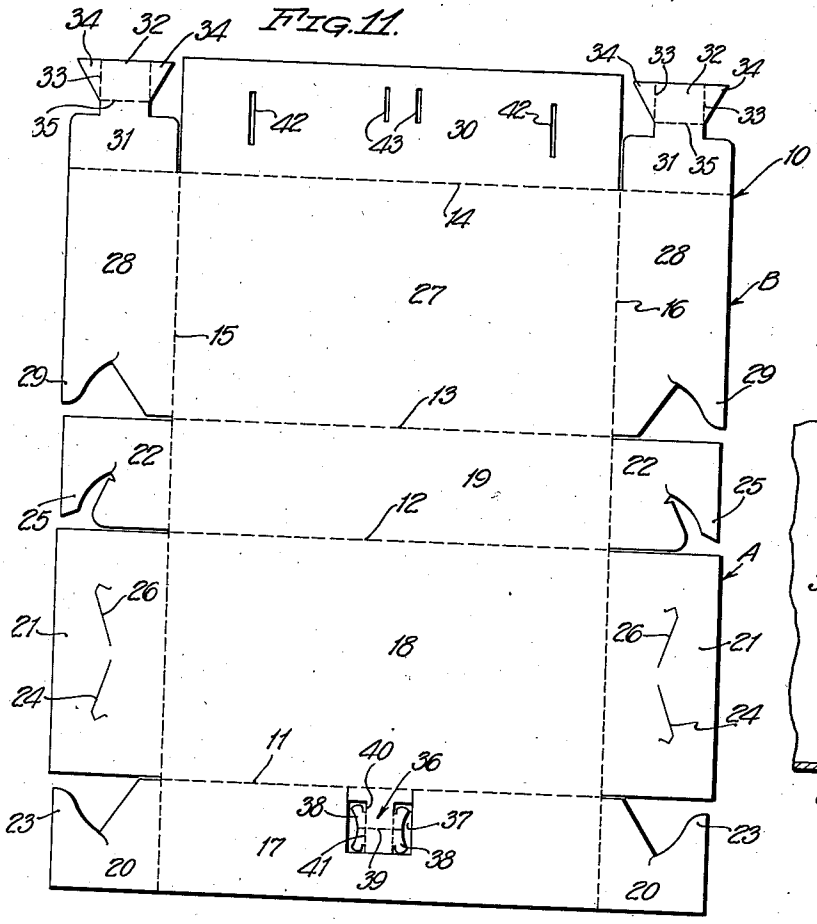


FIG. 10.

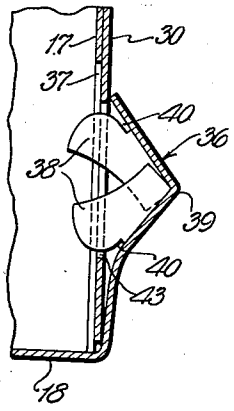


FIG. 8.

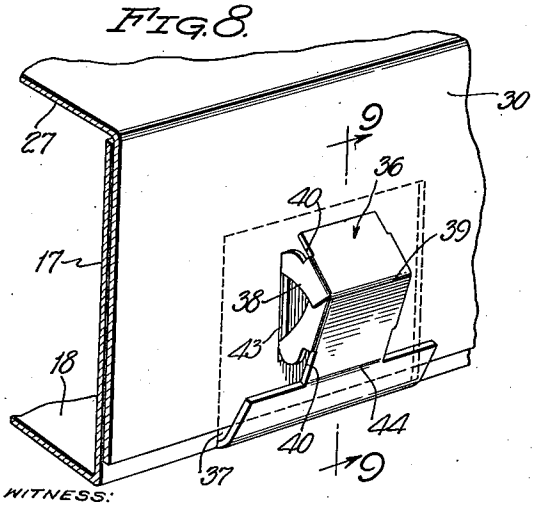
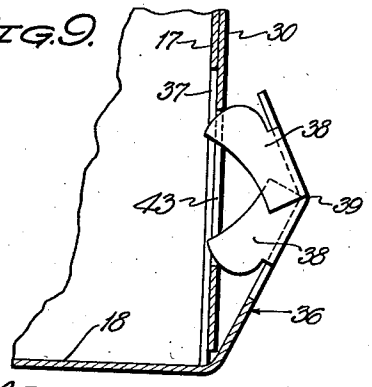


FIG. 9.



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UNITED STATES PATENT OFFICE

2,067,740

SHIPPING BOX OR CARTON

Abraham Uzell, Brooklyn, N. Y.

Application January 22, 1936, Serial No. 60,153

7 Claims. (Cl. 229—45)

This invention relates to improvements in collapsible shipping boxes or cartons.

One of the main objects of the invention resides in a cardboard box formed from a single blank of material which when set up for use, may be securely locked to prevent pilfering of the contents of the carton during shipment.

Another feature of the invention resides in a pilfer-proof carton which is cut and folded from a single rectangular shaped blank of cardboard with a minimum waste, for the reason that the walls and corner locking flaps are all formed within the confines of the sides of the rectangular blank.

A further feature of the invention is to provide a cardboard carton consisting of a body section and a hinged cover section which embraces the side walls of the body section when the cover is closed thereover, there being a novel form of interlocking means between the cover and body sections, to secure the cover in closed position and which means cannot be released without mutilating the same. Thus the cover may be securely sealed against opening without the aid of sealing tape or by other analogous methods.

A further feature of the invention is the provision of a one-piece self-locking carton in which all corners are reinforced by a multiplicity of interlocking lapping plies of material to prevent breakage at the corners during use in shipment or handling.

A still further object of the invention is to provide a simple and inexpensive carton which is strong and durable to withstand the shocks to which such type of cartons are subjected during use for the shipment of merchandise packed therein.

With these and other objects in view, the invention resides in the certain novel construction, combination and arrangement of parts, the essential features of which are hereinafter fully described, are particularly pointed out in the appended claims, and are illustrated in the accompanying drawings, in which:

Figure 1 is a perspective view of the improved carton in sealed condition.

Figure 2 is an end elevational view thereof.

Figure 3 is an end elevational view of the carton with the cover in a partially closed position.

Figure 4 is a fragmentary horizontal sectional view on the line 4—4 of Figure 1.

Figure 5 is a fragmentary vertical sectional view on the line 5—5 of Figure 2.

Figure 6 is a vertical sectional view on the line 6—6 of Figure 5.

Figure 7 is a horizontal sectional view through the front cover lock showing the contents of merchandise within the carton, the said contents being illustrated in section.

Figure 8 is a fragmentary sectional perspective view showing the position of the front locking tongue about to be inserted into interlocking position.

Figure 9 is a detail vertical sectional view on the line 9—9 of Figure 8.

Figure 10 is a view similar to Figure 9 but showing the position of the locking tongue just prior to its final insertion to interlocking position.

Figure 11 is a plan view of the blank from which the carton is formed.

Referring to the drawings by reference characters and more particularly at this time to Figure 11 of the drawings, the numeral 10 designates a substantial rectangular shaped blank of bendable carboard and from which the entire carton is constructed. In constructing cartons for shipping purposes, stiff corrugated cardboard is employed but it will be appreciated that the carton may be constructed of a weaker stock of material if desired.

The blank of material 10 is scored on the horizontal fold lines reading from bottom to top in Figure 11, the said horizontal fold lines being disposed parallel to the top and bottom edges of the blank and being identified by the reference numerals 11, 12, 13, and 14. The blank is also scored on the vertical score lines 15 and 16, reading from left to right and the said vertical score lines are disposed parallel to and adjacent the straight side edges of the blank. The body section of the carton is formed of that material extending between the lower edge of the blank and the score line 13 and the said body section in its entirety is designated A whereas the cover section B is formed from the material extending from the score line 13 to the top edge of the blank.

The material extending from the score line 11 to the bottom edge of the blank constitutes a front wall 17 while the material of the blank within the confines of the score lines 11, 12, 15 and 16 constitutes a bottom wall 18 for the body section A. The material bounded by the score lines 12, 13, 15, and 16 constitutes a rear wall 19 for the body section A. Contiguous with the ends of the front wall 17 and divided therefrom by the score lines 15 and 16 are front corner flaps 20—20

which are separated by cuts from the end walls 21—21 which are contiguous with the bottom wall 18. The rear corner flaps 22—22 are contiguous with the rear wall 19 and are separated by cuts from the end walls 21. The inner edges of the front corner flaps 20 are provided with V-notches to provide outer locking tongues 23 which are adapted for insertion through slots 24 in the end walls 21. The rear corner flaps 22 are also notched inwardly to provide hook tongues 25 at their free outer ends which are adapted to enter slots 26 in the end wall 21. The slots 24 and 26 form a pair of slots in each end wall, and the said slots are disposed in outwardly diverging relation for respectively receiving the tongues 23 and 25 for interlocking the corner flaps with the end walls 21 when the carton is set up.

The cover section B consists of a top wall 27 which is bounded by the score lines 13, 14, 15 and 16. Separated from opposite ends of the top wall by the score lines 15 and 16, are end walls 28—28, the inner ends of which are notched to provide hook tongues 29. The material of the blank bounded between the top edge of the blank and the score line 14 constitutes a front wall 30, while separated from opposite ends of the front wall 30 by slitting the blank are front corner flaps 31, the same being contiguous with the end walls 28. Each corner flap 31 is provided with a substantially keystone-shaped head 32, the same being scored on parallel lines 33 to divide the head into opposed triangular-shaped wings 34 while a score line 35 is provided at right-angles to the score lines 33 and connecting the same for a purpose to be presently explained.

Cut from the front wall 17 of the body section A is a locking tongue 36, the material from which the tongue is formed provides a rectangular-shaped opening 37 in the front wall 17. The tongue 36 is located centrally of the wall 17 and adjacent the fold line 11. Formed integral with the tongue 36 and disposed on opposite sides thereof, are wing flaps 38, there being a pair of these flaps disposed on each side of the tongue 36. The tongue 36 is scored transversely on the fold line 39, said line being disposed on a plane intermediate the planes of the inner ends of the wing flaps 38 of each pair. The outer ends of the wing flaps 38 are rounded as at 39 and are formed with inner notches 40. The wing flaps 38 are foldable inwardly on the parallel score lines 41 so that they may be disposed at right-angles to the planes of the tongue 36 to effect interlocking of the wing flaps in a manner to be hereinafter explained.

The front wall 30 of the cover section B is provided with vertical slots 42 disposed adjacent opposite ends of the said wall, whereas a pair of spaced slots 43 are provided adjacent the central portion of the wall 30 and are in direct alinement with the score lines 41 hereinbefore mentioned. The length of the slots 43 is less than the combined length of the wing flaps 38 of each pair but the said slots 43 are of a length approximating the distance between the notched portions 40 of each pair of wing flaps 38.

In the setting up of the carton from the blank 10, all of the walls of the flaps are foldable inwardly in the same direction. In setting up the box, the end walls 21 are folded inwardly, after which the front wall 17 and rear wall 19 may be folded to vertical position. The front wall 17 is locked to the end walls 21 by inserting the hook tongues 23 of the corner flaps 20 through the slots 24 whereas the rear wall 19 is locked in set up position by inserting the hook tongues 25 through the respective slots 26 in the end walls 21. From the assembly operation just described, it will be seen that the body section A of the carton has been formed. To form the cover section B, the end walls 28 are folded inwardly as is the front wall 30 and the end walls are locked to the walls 30 by reason of the keystone-shaped tongues 32 which are inserted into the respective slots 42. In order to insert the tongues 32 into the slots 42, the triangular wing portions 34 are folded on the score lines 33 so that they overlie the body portion of the tongues, after which the tongue is folded on the line 35 and inserted through its respective slot 42. After insertion, the wing portions 34 will spread outwardly or tend to open up due to the inherent characteristics of the material. By the interlocking of the tongues 32 with the front wall 30, it is impossible when the cover is in a closed position over the body section, to withdraw the tongues 32 from their respective slots.

From the description thus far, the carton has been completely set up for use and it is assumed that it is desired to close the cover section B over the body section A and effect the locking of the two sections together. To accomplish this, the cover section B as shown in Figure 3 of the drawings is swung downwardly over the body section A, the end walls 28 of the cover section embracing opposite ends of the body section. As the cover section B swings downward, the hook portions 29 slide in between the end wall 21 and the rear corner flaps 22 and when the cover is fully closed, the tongues 29 assume the interlocking position shown in dotted lines in Figure 2. By this construction, it is impossible to flex the free edge of the end walls of the cover section outwardly. This construction also tends to reinforce the rear corners of the carton while the front corners are reinforced by reason of the interlocking of the tongues 32 with the front wall 30 of the cover section. This interlocking at the front corners prevents entry to the inside of the carton at such corners.

With the cover fully closed over the body section, it now remains necessary to effect a locking of the cover section with the body section and this is accomplished in the manner now to be explained. The tongue 36 which is cut from the front wall of the body section is swung out to lap the front wall of the cover section, but since the slots 43 are of a less length than the normal length of a pair of locking wings 38, the said wings cannot be freely inserted into their respective slots. However, by bending or flexing the tongue 36 outwardly on the score line 39, an axis is formed on which the wings 38 may swing, the inner ends of the wings lapping each other as clearly shown in Figures 8, 9 and 10. The outer side edges of the wings 38 are curved and are of less width at their adjacent inner ends than at their outer locking ends to minimize the lapping area of the wings during folding of the tongue and thus enable the outer ends of the wings to freely enter the slots 42, which slots are of a width approximating the thickness of the wings 38. The notched ends of the wings may now be freely inserted through the slots 43, the curved outer portions 39 permitting of the free sliding of the wings 38 to the inside of the front wall 30 of the cover section. When the locking wings 38 have been fully inserted, the tongue 36 assumes a flat position against the exterior of the front wall 30 of the

cover section whereas the inner ends of the notches 40 interlock with the walls of the slots 43. The wing flaps 38 extend within the opening 37 provided in the front wall 17 of the body section and when the carton is filled with merchandise such as shown in Figure 7 and designated C, the wing flaps 38 will be spread outwardly in opposite directions to lie within the plane of the front wall 17, thus preventing any possible withdrawal of the locking wing flaps from their interlocking engagement with the front wall 30 of the cover section. In order to obtain access to the contents of a packed carton, it is necessary that the locking tongue 36 be mutilated by cutting the same transversely such as for instance on the line designated 44. Thus it will be seen that the cover section may be sealed to the body section and the contents of the carton protected against pilfering since all of the exposed corners of the carton are interlocked against possible release. A carton of this construction will be found practicable for shipping purposes since entry of the carton cannot be obtained without detection or mutilation of the carton. Furthermore, it is unnecessary to employ paper tape and other analogous methods for positively sealing the carton against opening.

While I have shown and described what I consider to be the most practical embodiment of my invention, I wish it to be understood that such changes and alterations as come within the scope of the appended claims may be resorted to if desired.

Having thus described the invention, what I claim as new and desire to secure by Letters Patent of the United States, is:—

1. A cardboard carton formed from a single blank comprising a body section, a cover section hinged to the rear side wall of said body section and embracing the other side walls thereof when the cover is in closed position, a tongue cut from the front side wall of said body section and folded outwardly to lap the front wall of said cover section, pairs of locking wing flaps integral with said tongue and disposed on opposite sides thereof and scored for rearward folding, a score line extending transversely of said tongue intermediate the plane of the inner ends of the wing flaps of each pair, the front wall of said cover section having spaced vertical slots therein, the space between said slots approximating the width of said tongue and said slots being of a length less than the combined length of the wing flaps of each pair, whereby said tongue may be folded on the score line thereof to substantially V-shape to enable the inwardly folded wing flaps to be freely inserted through the respective slots into interlocking engagement with the inner side of the front wall of said cover section upon subsequent flattening of the folded tongue against the exterior of the front wall of the cover section.

2. A cardboard carton comprising two box-like sections having lapping walls when the sections are in telescoped closed position, a tongue cut from a wall of the inner section and providing an opening therein, said tongue being folded outwardly to lap the adjacent outer lapping wall of the other section, pairs of locking wing flaps integral with said tongue and disposed on opposite sides thereof, fold lines at the juncture of said wing flaps and tongue to facilitate inward folding of said wing flaps, a score line extending transversely of said tongue intermediate the plane of the inner ends of the wing flaps of each pair, the outer lapping wall having spaced vertical slots therein, the space between said slots approximating the width of said tongue and the slots being of a length less than the combined length of the wing flaps of each pair, whereby said tongue may be folded on the score line thereof to substantially V-shape to enable the inwardly folded wing flaps to be freely inserted through the respective slots into interlocking engagement with the inner side of the outer wall upon subsequent flattening of the folded tongue against the exterior side thereof.

3. A cardboard carton comprising a single blank cut, scored and folded to provide a box body section having a bottom wall, a front wall, a rear wall, opposed end walls, corner flaps folded inwardly from the ends of the front and rear walls and lapping the exterior of the end walls, hook tongues formed on said flaps, said end walls each having a pair of slots therein for receiving the hook tongues to effect interlocking of said corner flaps and end walls; a box-like cover section comprising a top wall hinged to said rear wall, a front wall, end walls, interlocking means between the ends of the cover front wall and the adjacent front ends of the cover end walls, hook-shaped locking tongues at the rear ends of the cover end walls for reception between the body end walls and the lower outer body portion of the rear corner flaps when the cover section is swung to a closed position over said body section to effect interlocking of the cover and body sections adjacent the rear corners thereof, and means for securing the cover and body sections in closed position.

4. A cardboard carton comprising a single blank cut, scored and folded to provide a box body section having a bottom wall, a front wall, a rear wall, opposed end walls, corner flaps folded inwardly from the ends of the front and rear walls and lapping the exterior of the end walls, hook tongues formed on said flaps, said end walls each having a pair of slots therein for receiving the hook tongues to effect interlocking of said corner flaps and end walls; a box-like cover section comprising a top wall hinged to said rear wall, a front wall, end walls, interlocking means between the ends of the cover front wall and the adjacent front ends of the cover end walls, and hook shaped locking tongues formed in the rear ends of the cover end walls for reception between the body end walls and the lower outer body portion of the rear corner flaps when the cover section is swung to a closed position over said body section to effect interlocking of the cover and body sections adjacent the rear corners thereof.

5. In combination, inner and outer cardboard walls, a tongue cut from the inner wall and having lapping engagement with the exterior of the outer wall, pairs of wing flaps foldable inwardly from opposite sides of said tongue, hook-shaped locking tongues provided on the outer ends of the pairs of wing flaps, the outer wall having spaced vertical slots therein of a length less than the combined length of the respective pairs of wing flaps whereby said tongue may be outwardly flexed to effect insertion of the hook-shaped locking tongues into the vertical slots to effect interlocking of said hook-shaped tongues with the walls of said slots and enable said tongue to flatly engage the exterior of the outer wall.

6. In a carton, a body section, a cover section having a wall overlapping a wall of said body

section when the sections are together in closed position, the lapping wall of the cover section having spaced slots therein in open communication with the interior of the body section through a cut-away portion in the adjacent wall thereof, a locking member comprising a bendable body, pairs of locking wing flaps disposed on opposite sides of said bendable body and scored for inward folding, a score line extending transversely of said body intermediate the plane of the inner ends of the wing flaps of each pair, the spaced slots being of a length less than the combined length of the wing flaps of each pair, whereby said bendable body may be folded on the transverse score line thereof to substantially V-shape to enable the inward folded wing flaps to be freely inserted through the spaced slots and cut away portion into the inside of the carton for subsequent flattening of the folded body against the exterior of the wall of the cover section.

7. In combination, inner and outer lapping walls, the latter having a pair of spaced slots therein, the inner wall adjacent said slots having an opening therein, a locking member comprising a bendable body, pairs of wing flaps foldable inwardly from opposite sides of said body, said pairs of slots being of a length less than the combined length of the respective pairs of wing flaps, whereby said body may be outwardly flexed to effect insertion of the wing flaps into said spaced slots and through said opening for outward folding to effect a locking of the same inside of the outer lapping wall when said body is subsequently flattened against the exterior of the outer wall.

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