Aug. 14, 1956 G. A. MOORE 2,758,775

CONTAINER STRUCTURE WITH INTEGRAL CLOSURES

Filed April 19, 1954 2 Sheets-Sheet 1

FIG. 1

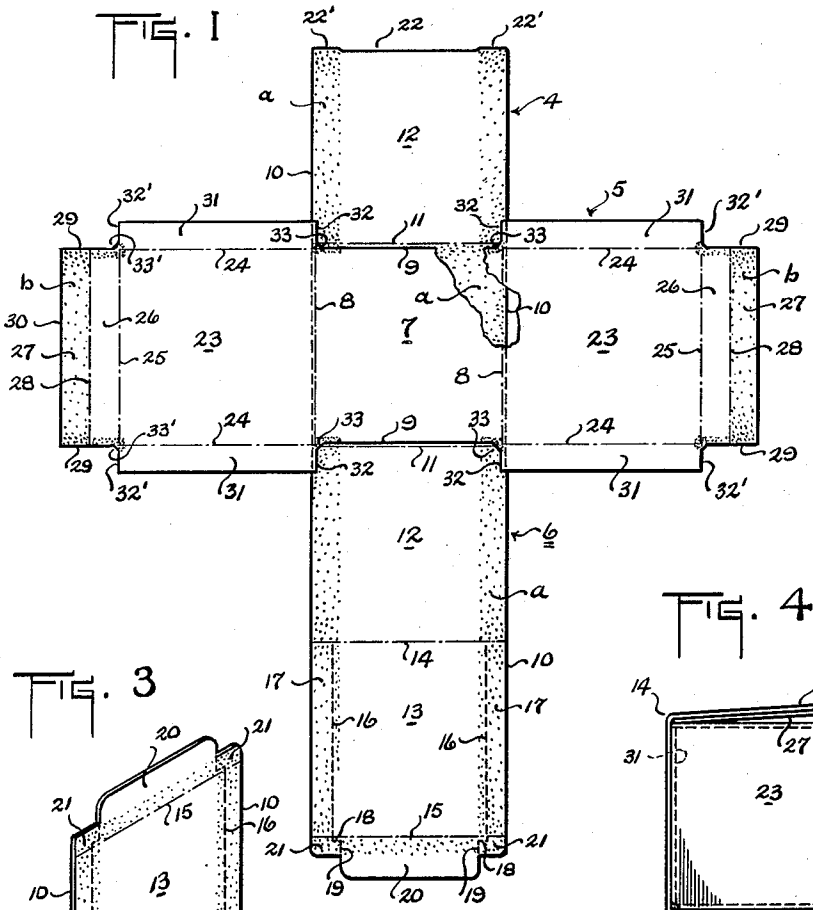


FIG. 3

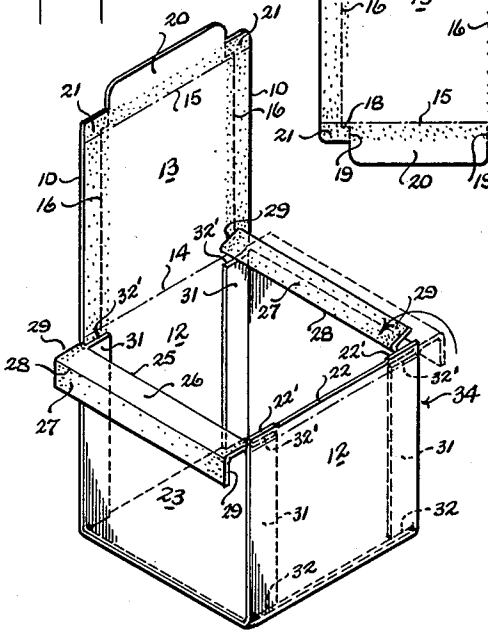
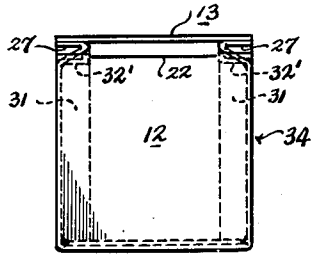


FIG. 4

FIG. 5



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FIG. 6

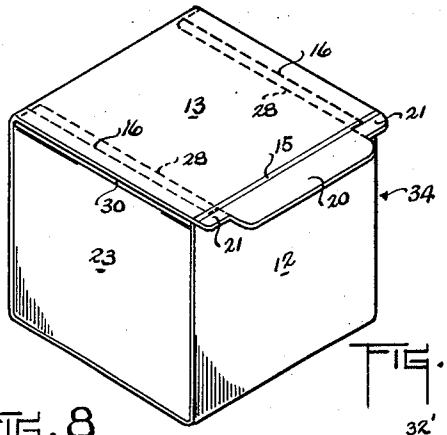


FIG. 7

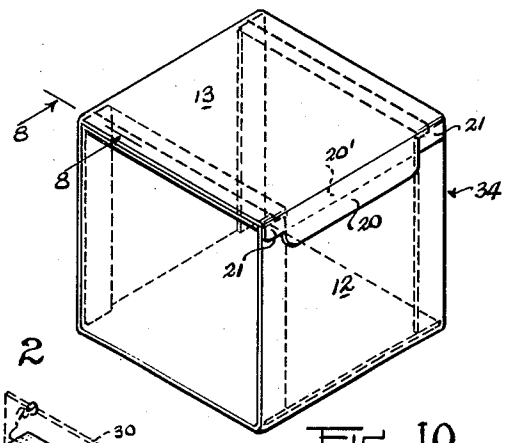


FIG. 2

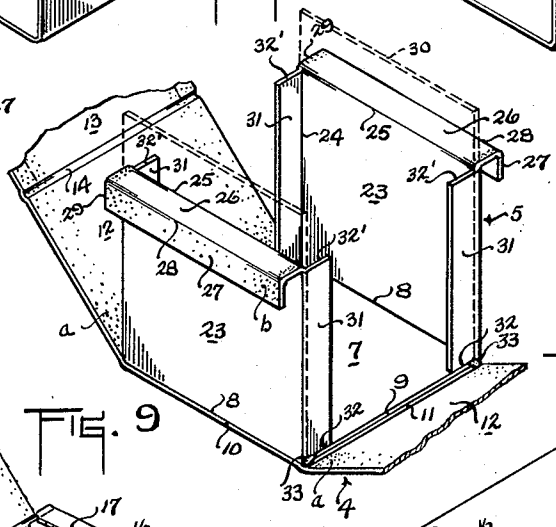


FIG. 8

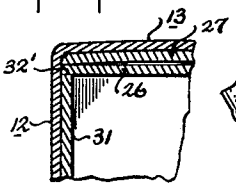


FIG. 10

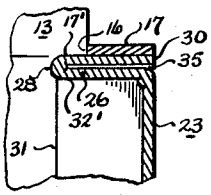


FIG. 9

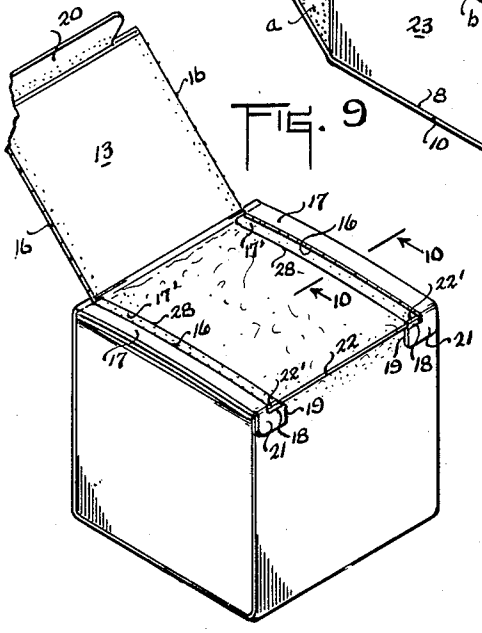
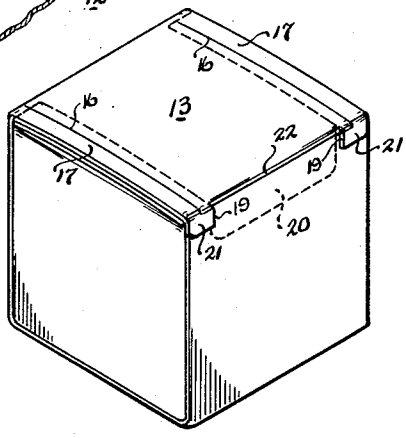


FIG. 11



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CONTAINER STRUCTURE WITH INTEGRAL CLOSURES

George Arlington Moore, New York, N. Y.

Application April 19, 1954, Serial No. 424,044

9 Claims. (Cl. 229—23)

This invention relates to containers of fibrous or other flat web sheet material, more particularly to an improved container structure and novel means for forming and sealing the enclosure walls thereof which includes the top end closure whereby efficient and economical containers may be made available to packers of food-stuffs and other commodity products for distribution, and also provide convenient utility in the use of the containers by the consumer of the product.

It has long been desired by manufacturers of containers to produce an economical paper container having efficient consumer utility and that may be folded of sheet material and provide a body with integrally related bottom and top closures that are altogether efficient for use and protection of food-stuffs. Folding boxes or cartons while being used conventionally in considerable volume for this purpose are inadequate, for they must rely upon inner liners or inserted bags with which to actually contain the product. In closing the cartons difficulty has been experienced in the forming of tight end closures inasmuch as no internal supporting means for properly sealing the closure is possible due to the space displacement of the container contents. In my co-pending applications Serial No. 399,000 filed Dec. 18, 1953, now Pat. No. 2,751,136, Serial No. 402,558 filed Jan. 6, 1954, now Pat. No. 2,737,338, and Serial No. 402,559 filed Jan. 6, 1954, now Pat. No. 2,737,337, novel arrangements are disclosed of container structure and closures whereby opposing resilient sealing ledges are provided from two opposing side walls of the container, the ledges co-operating with the body structure in the forming of the closure or closures of the container. Very efficient results are secured in these prior constructions by providing the resilient sealing ledge arrangements which effect co-operative relationship with other adjacent side wall members to form an efficient and completely intergraded container, the resilient sealing ledges providing adequate support for efficiently sealing the top closure of the container after the filling thereof.

The present invention constitutes an improvement on the inventions of the prior applications, one of the main objects herein is to provide a container structure having interiorly disposed body wall juncture flanges which co-operate in forming the structure of the opposing closures of the container, and also provide uniformly flat exterior walls which support brand decorative color printing which is economically afforded by the arrangements of decorating two blanks used to form the container.

Another object of the invention is to provide an improved container structure having two opposing side walls which provide means for forming efficient and tight junctures with two adjacent opposing side walls including a uniform non-resilient bottom closure, and also provide co-operative means with which an opposing end closure of the container may be formed to have resiliency.

A further object of the invention is to provide a container structure that provides a top end closure that is resiliently active yet sealed substantially hermetic but which may be opened for dispensing purposes without use of implements, means being provided for conveniently reclosing the container substantially tight for further protection of remaining contents therein.

A still further object of the invention is to provide containers with a structural form of great strength and also provide for maximum economy in occupancy space and stacking efficiency of the filled containers.

Another object of the invention is to provide a novel container structure that is adapted to form straight or tapered side walls, the container being formed of two pre-assembled and pre-conditioned flat blanks arranged to co-operate in forming the complete enclosure walls of the container.

Still another object of the invention is to provide a container structure that is reinforced in such manner that relatively light guage sheet material may be economically employed in fabricating the container without undue sacrifice of required strength.

A further object of the invention is to provide a container structure having side wall marginal portions initially formed in such manner that the closure sealing medium is disposed in a non-fouling outward position with respect to the open mouth of the container while being filled with its intended product.

A still further object of the instant invention is to provide means in the structure of the container whereby the corner junctions of the enclosure walls are fortified against vulnerable weaknesses.

Other objects and structural features of the invention will appear more fully hereinafter from the following detailed description when considered in connection with the accompanying drawings. It is expressly understood, however, that the drawings are utilized for purposes of illustration only, and are not to be taken as a definition of the limits of the invention, reference being had for this purpose to the appended claims.

In the drawings, wherein similar reference characters refer to similar parts throughout the several illustrations;

Fig. 1 is a plan view of two flat pre-assembled blanks adapted to be formed into a container of the above type, a portion of one blank member being broken away;

Fig. 2 is a view in perspective showing the structure of the container in partial stage of being formed of the blanks, portions thereof being broken away;

Fig. 3 is a perspective view of the container structure as formed prior to its being filled and closed and showing one side wing in an intermediate position;

Fig. 4 is a slightly reduced view in side elevation of the container showing a stage in the closing thereof;

Fig. 5 is a front elevation of the container showing another view of Fig. 4;

Fig. 6 is a perspective view of the closed container prior to the sealing of the top closure thereof;

Fig. 7 is a perspective view of the container showing the top closure formed and completed;

Fig. 8 is a fragmentary view in cross-section taken on line **8—8** of Fig. 7 showing a structural feature of the container;

Fig. 9 is a perspective view of the container showing it after having been opened for removal of contents;

Fig. 10 is a fragmentary view in cross-section taken on line **10—10** in Fig. 9 showing the structural arrangements of the sealing ledges provided for re-seating the opened closure panel to reclose the container; and

Fig. 11 is a perspective view of the container showing the re-closure arrangement of the structure.

The instant invention is directed to a means and method for forming an economical and sturdy container that may preferably be made of relatively light weight paper board-like material from which a pair of elongated rectangular blank members are cut and suitably creased for bending purposes. The blanks may be printed in separate stages

if desired and prepared with resinous or aqueous adhesive and protective coating material before or after being cut from the web material. When fabricating the containers for use of products like cottage cheese, salad dessert or ice cream, the formed containers prior to being filled and closed may be flushed, sprayed or dipped in suitable liquid to form a protective wall coating. For purposes requiring maximum economy in this respect suitable wax-like material may be used to treat and sterilize the container such as molten paraffin. In such wax treatment a hot-melt adhesive compound largely comprised of ethyl cellulose and a suitable high melting point wax may be advantageously employed with which to form the thermal bonding of the seams to seal the top closure of the container when applying heat and pressure thereto. The blanks are preferably assembled together in flatly crossed relationship and bonded together at their respective central base areas to insure positive alignment for folding relationship of each of four extending other wall areas. A simple folding operation of the pre-assembled blank, forms and reenforces the enclosure wall structure of the container including, co-operating wall portions used for forming the top end closure thereof. The seams formed in the body structure which includes a bottom closure, may be thermally bonded by application of heat and pressure whereby selective pre-applied adhesive on the folded blank areas become quickly activated.

To this end, reference is made to Fig. 1 of the drawings, the present invention being illustrated therein as including a blank **4** crossed with another blank **5** to constitute a flat blank pre-assembly **6**. The blank member **4** is superimposed by the blank member **5** to provide a two ply base area section **7** which constitutes reinforced uniformly flat bottom closure wall of the container. The base area **7** is defined with two opposed parallel bending lines **8** and two transversely opposed parallel edges **9** of the blank member **5**, and outwardly disposed portions of two parallel longitudinal edges **10** and two opposed parallel transverse bending lines **11** of the blank member **4** of the assembly. The base of the blank member **4** is provided with outwardly opposing lateral wall portions **12**, one of said portions having a further lateral projection of a wall portion **13** defined with a bending junction line **14** and an outwardly disposed parallel bending junction line **15**. The wall portion **13** is provided with two parallel perforated lines **16** extending from the bending line **14** and outwardly of the line **15** to provide two outer opposed marginal defining portions **17** having outer defined edges **10** of the blank. The perforated lines are each joined with an inwardly transverse perforated line **18** disposed outwardly and parallel with the bending line **15** and which joins at substantially right angles thereto a perforated line **19**. The lines **18** and **19** sub-divide the area of a central flange portion **20** from two opposed side portions **21**. The opposite end of the blank member **4** is provided with a central end edge portion **22** and two opposed end edge portions **22'**. The blank member **5** is provided with two outwardly opposed lateral wall portions **23** each being defined with two parallel longitudinal bending junction lines **24**, transverse bending line **8** and outwardly disposed parallel bending line **25**. Each wall portion **23** is provided with a marginal portion separated into two foldable marginal portions **26**, **27** by bending line **28**, and side edges **29**, and two outwardly opposed longitudinal flange portions **31** having opposed transverse edges **32**, **32'** which edges are substantially in alignment with the bending lines **8** and **25** respectively. The edges **32** join at right angles with longitudinal edges **9** at small fillet portions **33**, the edges **32'** are joined at right angles to edges **29** with similar fillet portions **33'**. The edges **32** of the flanges **31** inwardly lap a portion of panel **12** adjacent the edges **10** of the blank member **4**.

The blank member **4** may be provided with a suitable pattern of seam bonding dry adhesive (*a*) prior to the pre-assembly of the blanks. A selection may be made from many varieties of suitable thermoplastic adhesives which are available for this purpose. Generally, the adhesive pattern is applied to the surface area of the blanks commensurate with the seam bonding areas that engage together when forming the structure of the complete container as illustrated in Fig. 3. Application of adhesive (*b*) may also be applied to the blank member **5** if desired. The blanks may be treated all over including the edges thereof, with suitable plastic material such as emulsions or dispersions of vinyls, polystyrene, polyethylene, saran or other compounds having suitable wall protective characteristics. Such compounds have thermoplastic properties useful for thermally forming the seams of the container structure. For purposes of economy, quick setting aqueous adhesive may be employed for assembly of the blanks and applied to other marginal portions of the blank assembly prior to the forming of the container structure. Such application of aqueous adhesive may be advantageously applied when the containers are fabricated for use of such products that may subject them to excessively high initial temperature.

The basic structure of the container **34** is formed by folding the blank assembly **6** over a suitable mechanical male form (not shown) to shape the enclosure walls of the container, a series of which may be attached to a movable turret or straight line mechanical conveyance. The base area section **7** of the blank is registered to the end face of the form and retained in position by clamping pressure thereto during the simple folding operation of forming the side wall enclosure structure of the container. This consists of bending the opposing wall portions **23** upwardly an inwardly from the bending junction lines **8** to be at substantially right angles to the base bottom wall **7** as illustrated in Fig. 2. The flanges **31** are then bent inwardly on the bending junction lines **24** to be at substantially right angles to the folded side walls **23**, the side ends **32** of the flanges being positioned in abutment with marginal portions of the inner face of the flat bottom wall **7**. Each of the corner fillets **33** when folding the flanges form a small projection of material in the corner junctions of the folded flanges and bottom wall which drifts slightly into a zone of adjacent end portions of the bending corner junctions **11** of the blank member **4** prior to the folding thereof, in doing so the fillet material overlaps edge portions adjacent the ends of the side edges **9** of the folded blank member **5**. Ends **30** of the folded side walls **23** remain in upright position as illustrated in dotted lines shown in Fig. 2 while folding the blank member **4** of the assembly which consists of bending the opposing wall portions **12** upwardly and inwardly from the bending junction lines **11** so that marginal portions of the inner face of the folded walls **12** will flatly contact the outer face of the first folded flanges **31**. Portions of each of the folded walls **12** adjacent the corner junctions **11** of the folded structure overlap the fillet formed projections **33**. The parallel side edges **9** are in substantial abutment with inner margins of the folded walls at and adjacent the junctions **11** thereof. Heat and firm pressure is applied to exterior marginal portions of the folded walls **12** in pressure opposing relationship which activates the adhesive (*a*) upon the inner surface of the folded blank member **4** bonding the contacting surfaces of the walls together in seam forming relationship. This may include the activation of the adhesive (*b*) upon the blank member **5**, when by its application, it is desired to have two primed marginal surfaces of adhesive in part or in respect to all of the structural seams of the container. The pressure applied with heat flattens the formed fillets **33** compressing them inwardly into the corner junctions of the wall structure of the container, plugging the corners securely with reinforcement to avoid any weakness or leakage possibility at these converging corner ends. The fact that activator adhesive is present on the fillets while being activated renders the plugging operation highly effective in fortifying the corner structure of the container at its most vul-

nerable wall junctions, the adhesive acting as a plasticizer for rendering the fillets semi-viscous at the instant of packing the said portions into the corner junctions, which upon cooling, are rendered densely solid. The exterior surface of engaging wall portions are thus substantially flat in uniformity with other side walls of the container.

The upper wing marginal wall portions **26** and **27** may preferably be pre-bent while the container is still upon the mechanical form before or after the seams of the container structure are thermally formed as illustrated in Fig. 2 or 3. Marginal portion **26** is bent outwardly from the wall bending junction line **25** and marginal portion **27** bent downwardly from bending junction line **28**. Such pre-bending operation breaks the rigidity of the creased bending lines **25, 28** (Fig. 3) which simplifies and facilitates subsequent folding operations thereof when forming the top closure structure of the container as illustrated with one wing in Fig. 3. It further facilitates the filling efficiency for the container by having the dependent adhesive marginal portions (*b*) of the pre-folded wing-backs located remote from any fouling possibilities of the adhesive while filling the container with its intended product, and the arrangement further provides a fully open space for quick filling of the container.

The completed body structure of the container **34** while still in the form illustrated in Fig. 3 may be sprayed or otherwise treated with a protective coating when using untreated blanks in forming the container, the raw edges of the interior structural flanges **31** and the respective wall junctions of the container being covered with suitable wall protective material. Varieties of liquid solutions such as water or alcohol emulsions may be selected and used for the purpose such as polystyrene, polyethylene, silicones and gelatines. For purposes of maximum economy and light duty requirements the containers may be sprayed or dipped in paraffin.

The container as hereinbefore described is shaped with straight flat walls and is in the form of a cube, preferably made so for use of certain varieties of food-stuffs requiring refrigeration to conserve space required for filled container storage, shipping, retail sales display and consumer storage. The container structure however as hereinbefore described is adaptable for forming the container with tapering side walls so that they will nest in each other when empty and thus afford economical shipping and storage space saving to packer plants which may not afford the investment of container forming machines. The basic structure of the container remains the same except the blanks may be slightly altered as follows: blank member **4** can be provided with tapered side edges on opposing sides of wall portions **12**. Blank member **5** can be provided with tapered bending lines at the inwardly disposed junctions of the flanges on opposing marginal sides of the wall portions **23**. The flanges maintain outer straight side edges. The opposed sloping angles widen from the base junctions of the blank, outwardly to the junction lines of the respective body side wall forming portions of the blank assembly.

The container **34** after being filled may easily be closed by hand prior to the sealing thereof, it being also adaptable for filling by any conventional filling machine. Mechanical conveyor equipment may be easily altered to convey the present containers for filling purposes and close the containers while in mechanically operated motion, delivering them into heated sealing belts or other suitable closure sealing mechanical means. The closing operation consists of re-folding or pushing the pre-folded wing-backs **26, 27** upwardly, inwardly and downwardly from the pre-broken bending junction lines **25, 28**, the opposed side edges **29** of the margins being flatly engaged upon marginal portions of the inner face of the back side wall **12** in wall abutting relationship. The margins **26, 27** also being flattened together so that portions of the margin **26** will engage upon the top ends **32'** provided by the vertical flanges **31**. These top edges **32'** are positioned downwardly of the bending junction line **14** of the closure panel **13** so that the multiple thickness of the margins **26, 27** is provided with displacement space below this panel defining line **14**. The same arrangement of top shoulder edges **32'** is provided for the opposing side of the container with respect to top edges **22'** of the side wall **12**. While retaining the collapsed wing-backs in flat position and in abutment with the back closure wall **12**, the closure panel **13** is folded inwardly and downwardly from its bending junction **14** as illustrated in Figs. 4 and 5. The resiliency of the wing-back folds materially resists the further downward movement of the closure panel in cushion-like action until marginal portions adjacent the opposing edges **29** rest upon the top edges **32'** of the vertical wall flanges **31**. The small fillet corner portions **33'** which join the edges **29** and **32'** of the walls **23** and wing-back margins **26** provide blunt corner junctions when folding the wall flanges **31** and wing-back margins **26, 27**. The blunt corners of the folds safeguards against any creeping ruptures of material at these otherwise vulnerable wall junctions of the container structure. The structural arrangement of the corner junctions is similar to that hereinbefore described for the bottom closure and side wall corner junctions of the container structure. The fillets **33'** are constituted such as to form a minimum of bulk forming material at the wall corner junctions of the wing-back folded margins. In general, the fillet arrangements in the structure of the container are medianly of the walls thereof. The panel **13** is pressed downwardly to lie uniformly flat in engagement with the upper margins **27** of the collapsed wing-backs as illustrated in Fig. 6. While in this position, the end flange portions **20, 21** are folded downwardly and inwardly in flat engagement with a marginal portion of the front wall **12** of the container as illustrated in Fig. 7. Heat and pressure is applied to marginal portions of the folded panel **13** and folded flange portions **20, 21** which activates the pre-applied adhesive disposed intermediate of the wall engagements, bonding the said marginal engagements together in seam forming relationship. Before releasing the pressure upon the said margins the heat is withdrawn and the margins chilled to set the bonding adhesive quickly. The perforated lines **16** in the closure panel **13** lie upon the sealed surfaces of the margins **27** of the wing-backs in such manner that the weakness of the cuts into the panel material is efficiently blocked off and fortified in firm marginal bonds of the closure panel which is secured for protection of the container contents. The perforated lines **18** and **19** are likewise blocked off and fortified by their contact with the exterior face of the front wall **12** of the container.

The novel structure of the container body as hereinbefore described provides efficient means which cooperate to form a flat integral top closure of the container opposed to the integral flat bottom closure thereof. Therefor, heavy stacking loads may be imposed upon the containers which are supported primarily by the body strengthening flanges **31** which provide shoulders or ledges **32'** for support of the opposing ends of the resilient sealing ledges of the closure structure as illustrated in Fig. 8. The opposing ends of the ledges are securely clamped to the shoulders **32'** by the adjacent junction of the overlapping closure panel **13** and oppositely disposed folded flange portions **21** of the panel. The span of the sealed ledges of the closure disposed between the clamped ends are resiliently active during the duty requirements of the container due to the compression imposed upon the ledges by the bonded margins of the closure panel as illustrated by the slight gap **35** formed between the wing-back marginal layers **26, 27** illustrated in Fig. 8. Loads imposed by stacking weight upon the containers further compress the sealed ledges which slightly expand in length which have effects of exerting pressure upon the opposing walls **12** which resists the abutted ends **29** thereof.

The finished structure of the container (Fig. 7) is

sturdy, strong and tightly sealed. The bottom closure thereof is comprised of two contiguous layers of wall material which makes the bottom rigidly strong and of uniform smooth surface. The upstanding interior wall flanges have their respective opposing ends in abutment with interior surface portions of the inner bottom closure wall and opposing end portions of the top closure sealing ledges which strongly trusses the container walls between the opposing closures. The bottom corner junctions of the said flanges are provided with reinforcements which efficiently tighten and strengthen the bottom corners with media at the base of the container. The inner bottom layer of the closure provides opposing side edges which abut upon bottom margins of two opposing side walls **12**, the top of which side walls are trussed by the abutments therewith of the multi-ply margins of the closure sealing abutted and clamped ledges. The two opposing adjacent side walls of the structure are materially strengthened by their integrally related flanges and sealed closure ledges. The abutted opposing ends of said flanges trusses the said side walls securely and the top closure panel being marginally sealed to the said ledges co-ordinates the structure into an efficient, strong, durable and serviceable container. The sealed ledges of the top closure affords efficient strength to oppose the sealing pressure necessarily imposed upon the transversely positioned flange portions **20**, **21** of the closure panel **13**. It is contemplated that the container structure and method of construction provides a basis for adaptation of variations in structural details and in the relative shape of the container as compared with the general description and illustrations serving the specification of the instant disclosure and which may be embodied by those skilled in the art without departing from the spirit or scope of the invention.

The structure of the container affords utility convenience for use by the consumer. It may be easily opened with ones' fingers by grasping the free central portion of the flange **20** (Fig. 7) and pull the flange outwardly and upwardly which severs the flange from the perforations **18**, **19** and from the sealed marginal portion **20'** of the flange. The flange portions **21** remain in sealed position upon the front wall **12**. Further upward movement with the fingers sever the closure panel perforations **16** freeing a major portion of the panel **13** to take the approximate position as illustrated in Fig. 9 thus exposing the contents of the container for convenient removal therefrom. Marginal opposing portions **17** of the closure panel remain securely sealed to outer portions of the up-face margins **27** of the wing-back ledges. Inner opposed ledge portions **17'** are exposed to form landing shoulders for further use of the partially severed closure panel **13** when re-closing the container. This novel arrangement of structure is illustrated in Fig. 10. The container is easily re-closed by swinging the open panel downwardly and tucking the free portion of the flange **20** inwardly of the top edge portion **22** of the front side wall **12** as illustrated in Fig. 11. The severed portion of the panel **13** closes back to substantially its original relationship with and upon the closure ledges and is retained in closed position by the tucked in portion of the partially severed flange, the opposing side edges thereof frictionally wedge between the inner opposed corner edges **28** of the ledges adjacent the inner face of the front side wall. The opening and re-closing of the container may be executed repeatedly without detriment to the efficiency of the structural arrangement of the closure, the resiliency of the closure remains active at all times which materially assists in providing a tight re-closure of the container to prevent or minimize any extraneous odor contamination to the product remaining in the container. The retained flange portions **21** secures the outer marginal closure ledges in substantially their originally constructed structural form to provide continued resilient co-action with the restored closure panel as hereinbefore described.

The blanks for forming the containers are adapted to be made and printed by conventional machinery equipment used by folding carton manufacturers which may provide the blanks in flat form to packer plants or other fabricators having container forming machines. This facility affords economy of shipping and storage of flat bulk saving blanks as compared with finished containers having straight walls. It also affords economy in low inventory cost requirements of finished containers for packers' use. The containers are also adaptable for being fabricated in taper nesting form so that they may be rendered economical for long range shipping to packers' plants that do not favor an installation of container forming machinery. The containers of the instant invention may be made at extremely low costs as compared with other types of paper containers in current use for food-stuffs. The cross-blank assembly and structural wall arrangements for sequence of folding in constructing the container as hereinbefore described provide adaptation for mechanically forming the containers efficiently and at exceptional speeds of production.

While the invention has been illustrated and described in detail, it will be understood, by those skilled in the art, that various changes may be made therein without departing from the spirit of the invention, reference being had to the appended claims for a definition of the limits of the invention.

I claim:

1. A container having four side walls arranged in opposing pairs and being up-turned from the sides of a flat and uniform double layer bottom wall adhesively bonded together to provide a body portion of substantially rectangular horizontal cross section and a closed bottom end, comprising one pair of side walls being up-turned from two sides of an integral upper layer of said bottom wall, each side wall of said one pair having a pair of inturned opposed up-standing side flanges, the bottom ends of which are engaged in edge to face abutments with interior surface margins of the corresponding bottom wall layer and thus having the outer face surfaces of said flanges substantially in plane with the free end sides of said bottom wall layer, the folded corner portions of said flanges and corresponding side walls having a relatively small amount of excess material overlapping portions of said end sides of the bottom wall adjacent said corners, the other pair of opposing side walls having its integral bottom wall layer exterior of the bottom layer having the related flanges, the up-turned pair of side walls from two sides of said outer bottom wall having interior marginal sides in contact with the outer face surfaces of said flanges in adhesively bonded relationship, the lower engaging corner wall portions of said side walls being compressed inwardly so that the pressure upon said excess material compresses it into interior regions of said corners in substantially coplanar wall surface relationship and thereby hermetically seal said corners formed of the side walls and bottom walls of the container.

2. A container as set forth in claim 1 wherein said pair of opposing side walls having said in-turned flanges are each provided with a continuous inwardly extending flange along its upper horizontal edge which flange is arranged independently of said upstanding flange portions so that it is reversely folded upwardly and outwardly in substantial face contacting relation, with its longitudinal face edge terminating substantially in the plane of side wall to which it is attached, the opposed transverse end side edges of the horizontal flange being in edge to surface engagements with interior marginal portions of said other pair of side walls, thereby forming a pair of inwardly opposed closure contacting ledges at right angles to the corresponding side walls, lower marginal end portions from said opposed edges being in contact with top end edges of said up-standing flanges to provide shoulder rests for said pair of ledges, one of said other pair of side walls in contact with one pair of said up-standing flanges having a folded full end closing panel provided with

means to be compressibly in contact with said ledges and having co-acting effects with said ledges and flange portions of the walls thereby effectively closing and sealing the container in adhesive bonded seam forming relationship.

3. An article of manufacture comprised of a flat blank assembly of foldable material adapted to be formed into a container having side walls to provide a body portion of rectangular horizontal cross section and an integral uniformly flat bottom closed end, said blank comprising two elongated cut strips of said material arranged in crossed relation and being adhesively bonded together upon a central wall portion of each strip constituting said flat bottom end, the lower bonded strip portion having substantial parallel end side edges and transverse parallel scored fold lines arranged and spaced to define a pair of laterally opposed foldable side wall panels each being extended outwardly of each of two scored fold lines defining opposed border sides of the related bonded wall portion, one side wall panel being provided with a scored fold line defining the outer border side thereof and a foldable end closing wall panel extending laterally outward to another parallel scored fold line, said panel being provided with an end portion outwardly of said fold line and cut to define a foldable flange, the panel and flange wall being provided with a pair of substantially parallel perforate lines spaced inwardly of outer free side edges thereof and extending longitudinally across said wall portion, said lines being offset inwardly in parallel outwardly of the scored fold line defining the flange, the upper bonded cross strip of blank assembly having a pair of parallel longitudinal scored fold lines and transverse parallel scored fold lines defining another pair of laterally opposed side wall panels outwardly of the border sides of its bonded wall portion, each said panel being cut substantially alike having a pair of opposed side flanges outwardly of said longitudinal scored lines and an end flange outwardly of a transverse scored line defining the border end side of the side wall panel, said end flange portion being provided with a central scored fold line adapted for the flange to be folded reversely in substantial face contacting relation adapted to have co-acting relation with said end closing panel portion, said side flange portions having their respective inner transverse end sides extending inwardly of and overlapping the free side edges of said lower strip, each pair of flanges longitudinally opposed, being joined with a longitudinal free edge side of the corresponding central bonded wall, which sides are spaced inwardly of the scored fold lines defining the border sides of the lower bonded wall portion, each inner cut corner at the opposed end sides of each flange having a fillet of excess material defining the terminal ends of each of said longitudinal scored fold lines.

4. An article as set forth in claim 3 wherein the upper surface of said lower strip of blank assembly is provided with two opposed border stripes of dry activator adhesive extending longitudinally of the strip and being of substantially the same width as said longitudinally opposed side flanges of the other crossed strip, and including a stripe of said adhesive transversely across a border portion of said end flange adjacent the scored fold line defining same, the opposite end of the strip being provided with two outer opposed end edges extending with the border width of said adhesive and offset outwardly with respect to a central end edge portion extending therebetween.

5. A container of sheet material having four side walls arranged in opposing pairs, each pair provided with an integral bottom wall portion adhesively bonded together from which the side walls are up-turned to provide a rectangular horizontal cross section comprising one pair of opposed side walls each having a pair of transversely opposed in-turned up-standing marginal flanges having lower end sides in edge to face abutment with up-face surface portions of the corresponding bottom wall, which wall is provided with two opposed end side edges in plane with the exterior surfaces of said flanges, the corner portion of each in-turned flange having fillet material overlapping said end side edges adjacent the terminal ends thereof and from the junctive end of said abutment engagements, said fillet material being compressed and compacted into the interior regions of said corner portions by lower wall portions of a pair of other opposed side walls, which walls have interior marginal surface portions in contact with the outer face of said flanges and end side edges including said fillet material in substantial coplanar wall relationship, and being adhesively bonded therewith in seam forming relation, said compressed fillet material providing means that reinforce and seal said corners in conjunction with vertical and horizontal marginal portions adjacent the edges of the container.

6. A container formed of sheet material comprising four side walls arranged in opposing pairs to provide a body portion of substantially rectangular shape in horizontal cross section, said side walls being up-turned from a two-ply flat bottom wall, each bottom ply being integral with each wall of one pair of said side walls and being contiguously joined together along their vertical corner edges in seam forming relationship, one pair of said side walls each being provided with an inwardly folded marginal portion thereof along its upper corner edge and a like marginal portion further folded upwardly, outwardly and downwardly in substantial face contacting relation, the outer longitudinal edge thereof terminating in the plane of side wall to which it is attached thereby forming a pair of inwardly opposed closure seating ledges, one side wall of the other pair being provided with an integral full end closing panel folded inwardly, downwardly and compressibly upon said ledges which resists said folded panel, said engagement of panel upon ledges being adhesively bonded together in seam forming relationship, said full panel having an end flange portion being folded transversely downward and inwardly upon an upper exterior margin of the opposing side wall of said other pair and adhesively secured thereto, said full panel being provided with a pair of substantially parallel perforate lines spaced inwardly of side edge extremities of the panel, each of said perforate lines being disposed over and upon each of said ledges spaced outwardly of the inner longitudinal folded corner edges thereof, and said lines being further extended outwardly of the fold line of panel defining flange portion, said flange portion having portions of said perforate lines offset inwardly so that the terminal portion of each perforate line across the flange is substantially aligned with said inner longitudinal corner edge of said folded ledges, said pair of perforate lines providing means to open said container upon being severed without disturbing the compressed and bonded relationship of said ledges with remaining marginal portions of said panel and including corresponding portions of said flange of the panel that are permanently adhered upon the adjacent side wall of the container relied upon to substantially maintain said ledges in their respective structural form as initially constructed.

7. A container of paper board or the like made as set forth in claim 6.

8. In a container having four side walls arranged in opposing pairs and a closed bottom end, which includes three of said side walls being provided with closure forming elements at the opposite end of the container, each of two opposed side walls of said three walls being provided with a relatively narrow width marginal portion folded inwardly along its upper corner edge then reversely folded upwardly and outwardly in substantial face contacting relation with its longitudinal edge terminating substantially in the plane of side wall to which it is attached, the opposed ends of said marginal folds abutting an upper interior surface portion of the adjacent pair of side walls, one wall of said adjacent pair having a foldable full end closing panel provided with a foldable

end flange portion including a pair of substantially parallel perforate lines being extended longitudinally across the panel and fold line of flange portion, then offset inwardly and outwardly across said flange to be in substantial alignment with the longitudinal inner corner edges of said reversely folded margins of side walls, said full panel being folded inwardly and downwardly upon the face of said reversely folded margins and said flange portion being folded downwardly and inwardly upon the exterior surface of an adjacent side wall that is not provided with a closure forming element, the engaging surfaces of panel with said margins being adhesively secured together including an upper marginal portion of flange and side wall surface engagement, said perforate lines in the panel being disposed upon said reversely folded margins and spaced outwardly of said longitudinal inner corner edges thereof, the perforate lines across said folded flange portion being aligned with said inner corner edges so that when opening the container by said perforate means said reversely folded side wall margins will remain structurally formed substantially as initially constructed to provide strong multiple ply reinforcements upon top border sides of the opened container and provide a stepped marginal portion upon said reversely folded margins that are spaced outwardly of said inner corner edges whereby, the severed central portion of the opened panel can restore the closure in flat plane by being seated upon the inner portion of said stepped margins and the central portion of the flange having opposed severed side edges that will wedge transversely between engaging portions of said inner corner edges of the stepped margins when inserting said central flange portion of the panel inwardly and downwardly of the top edge of side wall upon which outer remaining portions of the flange adjacent said top edge are permanently secured.

9. A container having four side walls arranged in opposing pairs and being up-turned from the sides of a flat and uniform double layer bottom wall adhesively bonded together to provide a body portion of substantially rectangular horizontal cross section and a closed bottom end, comprising one pair of side walls being up-turned from two sides of an integral upper layer of said bottom wall, each side wall of said one pair having a pair of in-turned opposed up-standing side flanges, the bottom ends of said side flanges being engaged in edge to face abutments with interior surface margins of the corresponding bottom wall layer and thus having said outer face surfaces of said flanges substantially in plane with the side edges of said bottom wall layer, the folded corner portions of said flanges and corresponding side walls having a relatively small amount of excess material overlapping portions of said side edges of the bottom wall adjacent said corners, the other pair of opposing side walls having its integral bottom wall layer exterior of the bottom layer having said up-standing flanges, the up-turned pair of side walls from two sides of said outer bottom wall having interior marginal surface sides coated with thermoplastic adhesive in contact with the outer face surfaces of said flanges in adhesively bonded relationship, the lower engaging corner wall portions of said side walls being compressed inwardly in contact with said adhesive and into interior regions of said corners in substantially coplanar wall surface relationship whereby said corners formed of the side walls and bottom walls of the container are hermetically sealed by the co-action of said excess material and said thermoplastic adhesive.

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