

Oct. 21, 1941.

J. S. STOKES

2,260,064

METHOD OF MAKING CONTAINERS

Filed Aug. 16, 1939

4 Sheets-Sheet 1

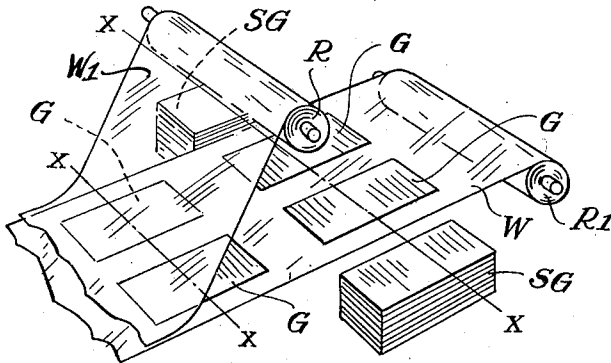


Fig. 2.

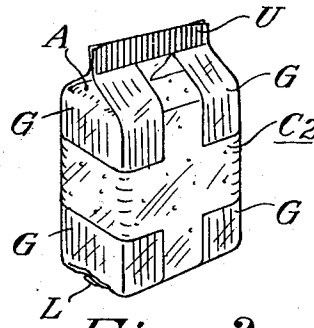


Fig. 3.

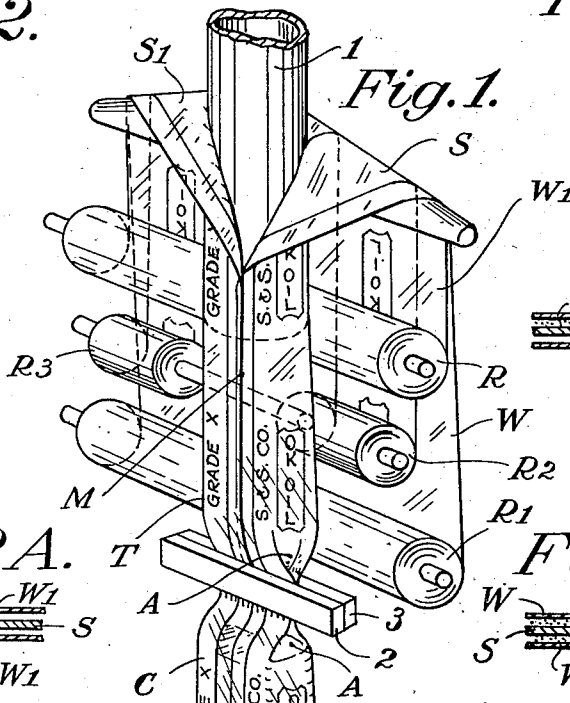


Fig. 1.

Fig. 2A.

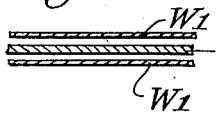


Fig. 2B.

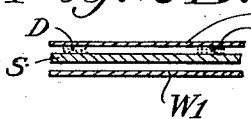


Fig. 2C.

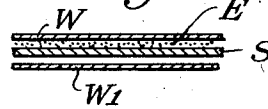
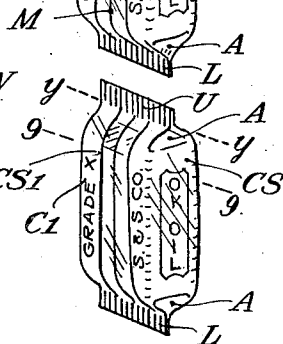
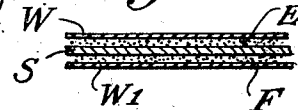


Fig. 2D.



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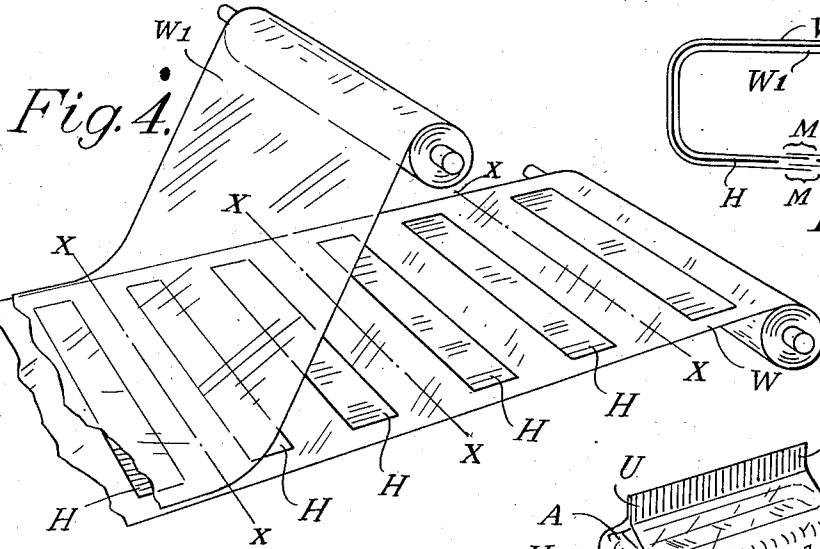


Fig. 4.

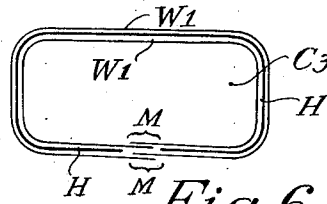


Fig. 6.

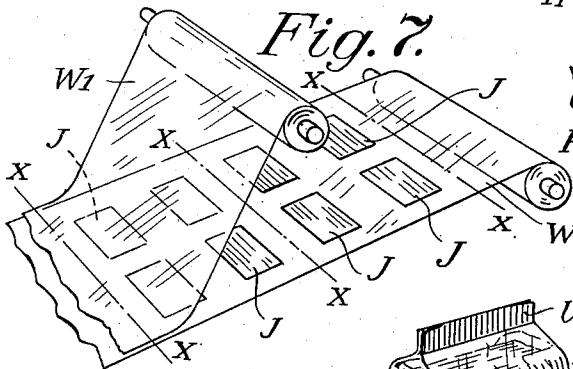


Fig. 7.

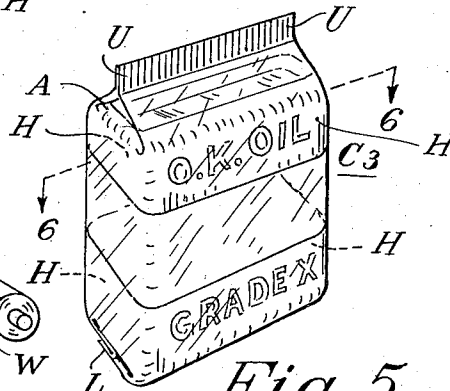


Fig. 5.

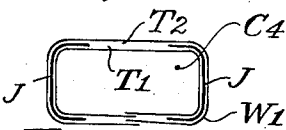


Fig. 9.

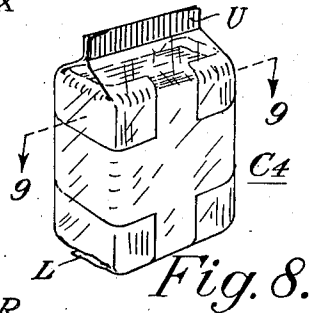


Fig. 8.

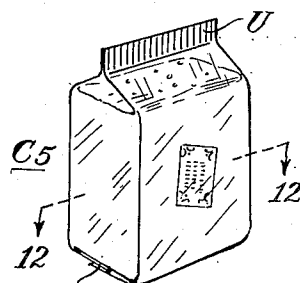


Fig. 11.

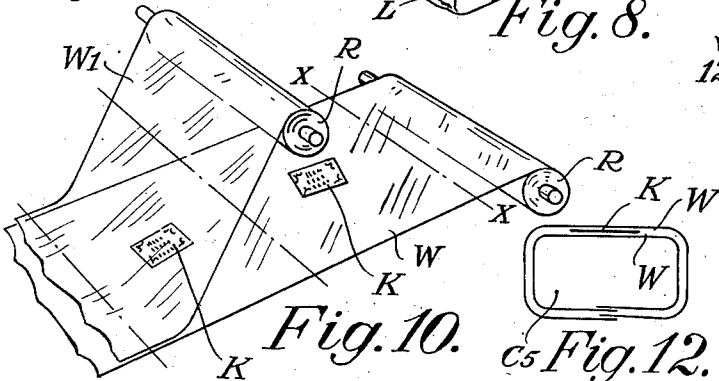


Fig. 10.

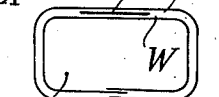


Fig. 12.

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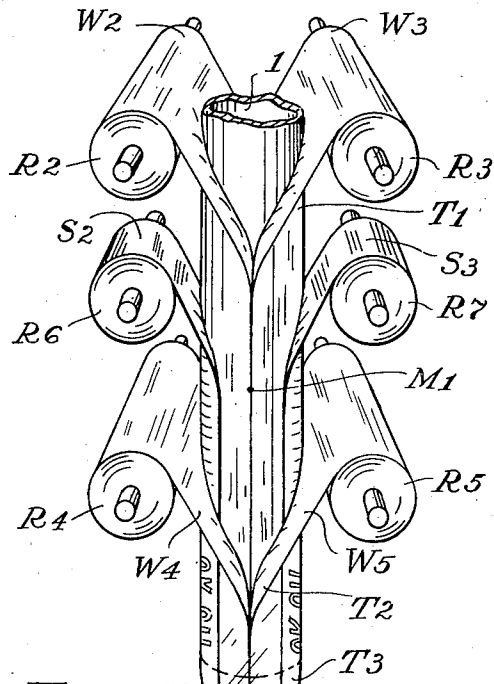


Fig. 13.

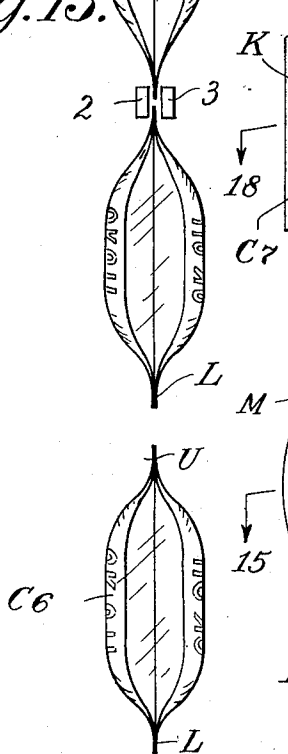


Fig. 14.

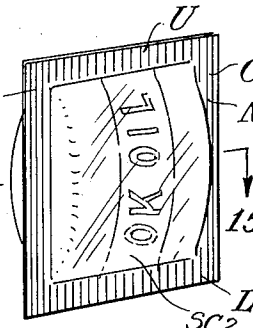


Fig. 15.

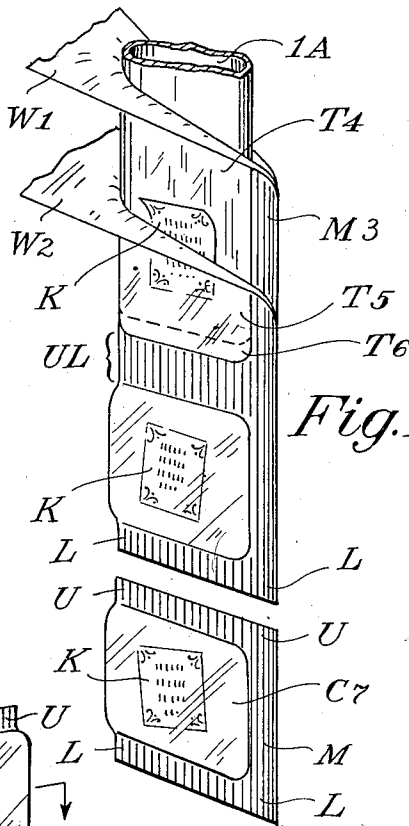


Fig. 16.

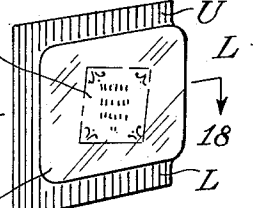


Fig. 17.

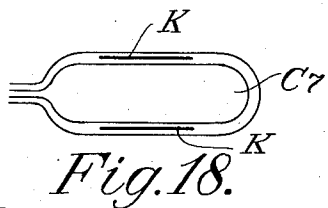


Fig. 18.

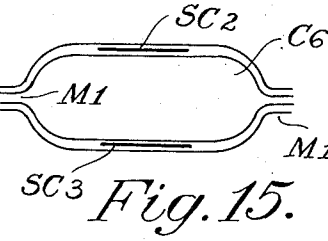


Fig. 19.

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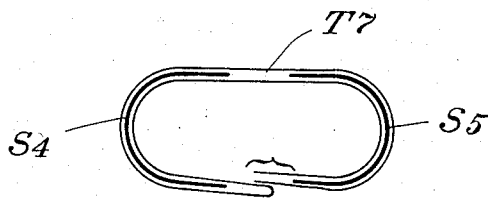
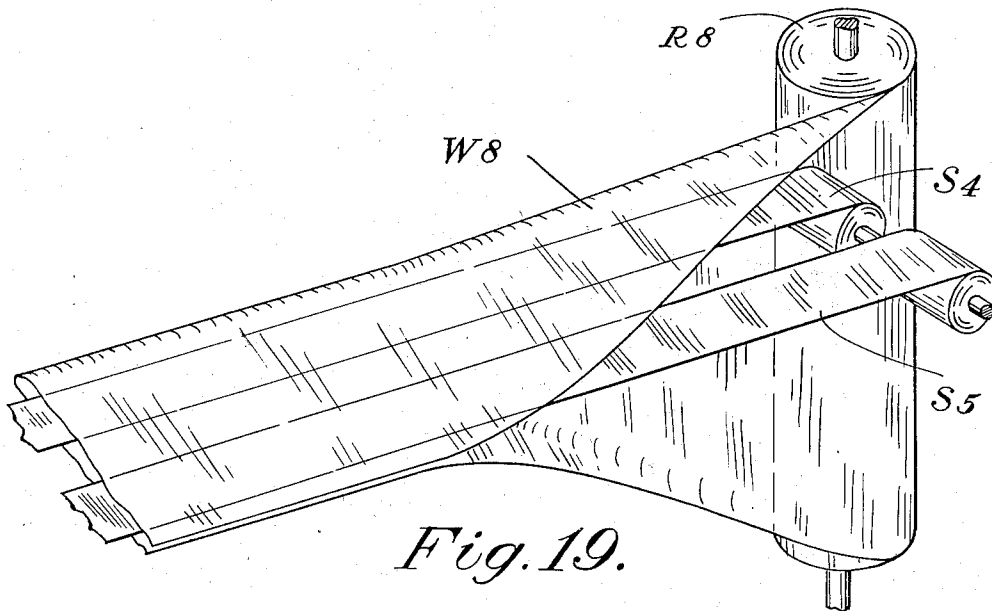
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METHOD OF MAKING CONTAINERS

Filed Aug. 16, 1939

4 Sheets-Sheet 4



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2,260,064

METHOD OF MAKING CONTAINERS

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Application August 16, 1939, Serial No. 290,378

25 Claims. (Cl. 93—3)

My invention relates to the manufacture of multi-ply containers for liquids and other materials, from flexible webs, particularly Cellophane, Pliofilm, or the like.

In accordance with my invention, web material is shaped and its marginal edges joined to form a multi-ply tube having within its multi-ply wall material introduced between the plies of web material before or after it is shaped to form the tube; more particularly, in accordance with certain aspects of my invention, web material is shaped and its marginal edges joined to form a multi-ply tube of at least two nested tubes, with at least two plies either entirely or substantially wholly free of attachment to each other to provide inter-ply accommodation for material, usually in sheet form and comprised of a succession of individual elements, or of one or more continuous strips, retained between the plies of containers formed by transversely sealing the multi-ply tube at intervals longitudinally thereof; the strips or elements, when the overlying ply or plies are of transparent material, may be used for display purposes in addition or alternatively to their use as reenforcement for the container walls.

My invention further resides in the methods of making containers hereinafter described and claimed.

For illustration of various forms of containers made in accordance with my invention, and of preferred methods of making them, reference is to be had to the accompanying drawings in which:

Fig. 1 in perspective illustrates the formation of filled containers from webbing;

Fig. 2 in perspective illustrates the formation of multi-ply webbing suited for making another type of container;

Figs. 2A, 2B, 2C and 2D are sectional views of multi-ply webbing referred to in explanation of Fig. 2 and other figures;

Fig. 3 in perspective shows a filled container made from the webbing of Fig. 2;

Fig. 4 in perspective illustrates the formation of another type of multi-ply webbing;

Fig. 5 in perspective shows a container made from the webbing of Fig. 4;

Fig. 6 is a section taken on line 6—6 of Fig. 5;

Fig. 7 in perspective shows the formation of another type of multi-ply webbing;

Fig. 8 in perspective shows a filled container made from the webbing of Fig. 7;

Fig. 9 is a section taken on line 9—9 of Fig. 8;

Fig. 10 illustrates formation of another type of multi-ply webbing;

Fig. 11 shows a container made from the webbing of Fig. 10;

Fig. 12 is a section taken on line 12—12 of Fig. 11;

Fig. 13 in perspective illustrates the formation of a wafer type of container from webbing;

Fig. 14 in perspective shows a container made by the method of Fig. 13;

Fig. 15 is a section taken on the line 15—15 of Fig. 14;

Fig. 16 illustrates formation of another type of wafer-shape container;

Fig. 17 in perspective shows a container made by the method of Fig. 16;

Fig. 18 is a section taken on line 18—18 of Fig. 17;

Fig. 19 in perspective illustrates formation of another type of multi-ply web;

Fig. 20 is a section of a container made from the webbing of Fig. 19.

Referring to Fig. 1, the webs W, W' removed, respectively, from the rolls R, R' are shaped about the hollow form I and their marginal edges joined to form a multi-ply tube T; preferably, the webs W, W' are of Cellophane, Pliofilm, or other web material which is thermoplastic because coated, impregnated with, or consisting of thermoplastic material; when the webs are of such material, the joinder of their overlapping margins is effected by application of heat and pressure effected, for example, by a heated roll or platen which presses the overlapping margins of the webs against the form I.

Below the end of the form I, the multi-ply tube T is flattened and transversely sealed by the heated clamping tools 2, 3, to close the bottom of a container next to be filled and to seal the top of a previously formed and filled container C. The tools 2 and 3, while clamping the web between them, are moved downwardly to feed additional web material from the rolls R, R' over the form I where their edges are joined to form a further section of tubing T with longitudinal seam M. When the tools 2, 3 are released and again moved to the clamping position shown in Fig. 1, there is sealed the upper end of another container which, between the successive clamping movements of the tools 2, 3, was filled by introduction of material through the hollow form I. Thus, by repeated clamping movements of the tools 2, 3, and their downward movement, there is formed a succession of filled containers; machines suitable to perform afore-

said steps are shown in Zwoyer Patent No. 1,986,422, Sonneborn et al. application Serial No. 259,748, filed March 4, 1939; and Maxfield application Serial No. 205,937, filed May 4, 1938 upon which applications have issued Letters Patents of the United States Nos. 2,200,971 and 2,199,708, respectively.

To produce the "square" type container shown in Fig. 1 and other figures, the opposite sides of tube T are tucked in before the tube is flattened by sealing tools 2, 3, thus to form the gusset folds A. A suitable mechanism for effecting this tucking operation is described and claimed in Sonneborn et al. application Serial No. 297,484, filed October 2, 1939.

In accordance with the present invention, the container is formed from multi-ply webbing shaped and marginally joined to comprise nested tubes which are substantially free of attachment to each other except at the transverse seals formed by the tools 2, 3, or equivalent, defining the ends of the containers. The inner and outer tubes, depending upon the method of sealing, may be attached to each other by joinder of their marginal seals or may be entirely free of attachment except at the transverse seals.

The space between these two tubes is utilized, in the modification shown in Fig. 1, to receive the strips S, S' fed from the rolls R2, R3, between the webs W, W1 as they pass toward the form 1.

The strips S, S', so introduced between the nested tubes forming the multi-ply tube T, may serve as reinforcements for the webs W, W1; the strips S, S' may be of the same material as the webs W1, W2 or of different material; they may, for example, be paper, fabric, metal foil, or other sheet material. When the web W1 is of transparent material, such as Cellophane or Pliofilm, either or both of the strips S, S' may be decorated or printed for display purposes to avoid need for use of expensive printed Cellophane, Pliofilm, or like material.

For forming filled containers, each of the transverse seal sections formed by the tools 2, 3 between the successive containers is severed transversely intermediate its horizontal edges so that the lower part of it forms the seal U for the upper end of one container and the upper part of the same seal section forms the seal L for the lower end of the next container. When, however, it is desired to make open-end containers subsequently to be filled, each transverse seal section is cut along one edge, for example y-y, instead of intermediate its edges. In either case, when the multi-ply tube T is severed to detach an individual container, the reinforcing strips S, S' are concurrently cut to leave within the multi-ply wall of the container the two elements CS, CS' cut from the strips S, S', respectively.

Particularly when the multi-ply containers are filled and sealed at both ends, the elements CS, CS', within each container, may be free of attachment to either the inner or outer ply and may be held in place within the multi-ply wall by the clamping effect of the end seals and by some adhesion at the end seals between S, S', W and W1; or when the strips S, S' are of thermoplastic material, they may be free of attachment within the multi-ply wall except where firmly joined to the inner and outer tubes or plies by the sealing action of the tools 2, 3.

When the sole or principal purpose of strips

CS, CS' is to reinforce the webs W, W1, it is preferable they be left free, as above described, within the multi-ply wall, Fig. 2A, that the container may more readily conform to a shape induced by pressure without undue distortion, and so be less apt to break or crack at its corners or edges; moreover, movement of the strips within the plies reduces the possibility of coincidence of weakened areas of the plies and strips.

However, as shown in Fig. 2B, the strip S or S' may be attached at small spaced areas, indicated generally by the dabs D of adhesive, to one or the other of the webs W, W1; or, as shown in Fig. 2C, the strip S or S' may be attached throughout one face thereof, as indicated by the coating E of adhesive, to one or the other of the webs W, W1; or, as shown in Fig. 2D, both faces of strip S or S' may be, throughout, attached to both webs W and W1, generally as indicated by adhesive coatings E, F. It is to be understood that the dotted areas D, E, F represent attachment by adhesive, or attachment by heat-sealing of thermo-plastic materials.

The number of strips introduced between the webs W, W1, Fig. 1, may be smaller or greater than two; however, when the webs W, W1 are of transparent material, the total width of the strip or strips introduced between the webs is, particularly if the strip or strips are opaque, less than the circumference of the completed containers, thus to provide for inspection of the container contents through transparent wall structure of the container beyond the interwall strip.

When the outer web W1 is of transparent film, such as Cellophane, Pliofilm, or the like, the finish of the paper strips S, S' need not be of high grade because the sheen of the film insures smooth, pleasing appearance of the containers; the covering of strips S, S' by the transparent film W1 also preserves the legibility of the printing on the container because the film, compared with the paper strips, has negligible tendency to absorb grease, oil, or the like, during handling of the containers.

In the modification shown in Fig. 2, the webbing again comprises two webs W, W1 fed from supply rolls R, R1 toward a form 1, such as shown in Fig. 1. While the webs are moving or at rest in their path from the supply rolls R, R1 to the form 1, there is introduced between them a series of groups of elements G which are spaced from each other transversely and longitudinally of the web; preferably, the longitudinal spacing between the elements G is materially less than the distance, between lines x-x, corresponding with the length of web required for one container.

Consequently, when the composite web W, W1, G, is shaped around the form 1, there is produced a multi-ply tube T within whose multi-ply wall there are two series of longitudinally spaced elements G; the sealing tools 2, 3 flatten the multi-ply tube and seal it transversely across each pair of elements G, and subsequently knife structure, not shown, severs the multi-ply tube transversely within the limits of each seal section, thus to form a series of filled containers, similar to that shown in Fig. 3.

Assuming the elements G are of thermoplastic material, each of them, in the package C2 shown in Fig. 3, is in part thermoplastically bonded into one end of one of the seals U or L and the major or remaining part of each element G may be free of attachment to either of the inner or outer

plies of the package. Each of the elements G overlies and reinforces that part of the package which is most susceptible to breakage; namely, the corners and edges and particularly the sharp bends within the gusset folds A at the corners of the container.

The elements G may be fed from stacks SG thereof, Fig. 2, or may be cut from strips and fed in successive groups between the webs W, W1.

To preclude possibility of displacement of the elements G after engagement with one or both of the webs W, and until they are held in place as by the sealing performed by the tools 2, 3, they may be attached to web W, for example, at one or more small areas; when the elements G and web W are of thermoplastic material, this may be effected by stencilled adhesive applied in advance of the region of engagement between the webs W, W1.

Though superficially resembling the type of container shown and described in my copending application Serial No. 277,132, filed June 3, 1939, the container C2, Fig. 3, is an improvement both from standpoint of appearance and strength; because the reinforcing elements G are not attached to both and preferably neither of the plies, there is greatly decreased tendency for the material of the container wall to be weakened by repeated flexure at any definite place.

Preferably, as shown, the total area of the elements G is less than that of the container C2, so that when the webs W, W1 of the multi-ply wall are transparent, the contents are visible from the exterior of the container through its wall beyond the reinforcing elements which are usually, though not necessarily, opaque.

In the modification of Fig. 4, while the webs W, W1 are en route to the tube I about which they are shaped, and their marginal edges joined to form a multi-ply tube, there is disposed between them a series of longitudinally spaced elements H having, in general, the purpose and function of the strips S, S1 of Fig. 1 and the elements G of Fig. 2. Each pair of elements H, H is so spaced longitudinally of the web that the distance between their remote edges measured longitudinally of the web is less than the length of web material, between lines x-x, required to make a container. The elements H may be entirely free of attachment to either or both of the webs W, W1 or each of them may be attached, at least in one or two small areas, to at least one of the webs, to prevent their displacement during formation of the containers.

As the composite webbing, comprising the webs W, W1, and reinforcing elements H, is shaped about the form I, there is produced a multi-ply tube whose inner and outer plies are unattached except at the transverse seals formed by the tools 2, 3 and perhaps additionally at the longitudinal seals M, dependent upon the manner in which they are formed. In any event, each container formed from the webbing of Fig. 4 comprises intermediate its ends, as shown in Fig. 5, two bands H lying within its multi-ply wall and substantially encircling it (Fig. 6). These bands may serve simply to reinforce the package C3, or additionally or alternatively, they may be used for decorative or display purposes when at least the outer web W1 is of transparent material such as Cellophane or Pliofilm. When both webs W, W1 are of transparent material, the contents of the container C3 are visible between the two encircling elements H, H.

When used for reenforcing purposes, the width

of the elements H should be such that they overlie the corners of the package C3 and reinforce the sharp bends within the gusset folds A at its corners; because the reenforcing elements H, H are substantially free of attachment to each of the plies or tubes, there is absent the stiffening or embrittling effect of adhesive which would stiffen the wall and make it more susceptible to breakage; furthermore, because the elements H are free of attachment to the inner and outer plies, the possibility of relative movement lessens the tendency for the wall locally to weaken at any definite place.

Referring to Fig. 7, while the webs W, W1 are moving or at rest on their way toward the form I, Fig. 1, there is introduced between them a series of groups of elements J; each group comprises four elements spaced from each other transversely and longitudinally of the web. The distance between the remote edges of each pair of elements J, J, measured longitudinally of the web, is less than the distance, between the lines x-x, corresponding with the length of webbing required for a container. The elements J may be free of any attachment to the webs, or they may be attached in part or in whole to either or both of the webs, generally as shown in Figs. 2B-D. Preferably, they are substantially entirely free of any attachment.

The shaping of the webbing and joinder of its marginal edges about the form I results in a multi-ply tube between whose inner and outer walls there are included a series of groups of elements J; the sealing tools 2, 3 flatten the multi-ply tubing transversely at intervals to define a series of containers C4, Fig. 8, each having within its multi-ply wall and between its ends four reenforcing elements J, each embracing and reenforcing one corner of the finished container. When at least the outer ply is transparent, any one or more of the elements J may have thereon decoration or printing visible from the exterior of the package and whose visibility is preserved by the overlying and protective web W1.

In this package, like package C3, Fig. 5, the reenforcing elements terminate short of the end seals to afford increased stability of the package when the lower seal is turned under to square the bottom.

It is quite common to include premium slips, coupons, souvenirs, and the like, in packaged solid materials, but, for obvious reasons, it has not been feasible to do so with liquids. In the modification of my invention shown in Figs. 10 to 12, the space within the multi-ply wall of the containers is utilized to hold such souvenir, coupon, or the like, regardless of whether the contents of the container be liquid or solid.

Referring to Fig. 10, before the webs W, W1 are shaped about the tube I, Fig. 1, there is introduced between them a series of elements K generically representative of a souvenir, premium coupon, advertising pamphlet, or the like, at intervals each substantially equal to the length of webbing required for a container. Consequently, when the edges of the webbing are joined to form a multi-ply tube, there is within the multi-ply wall of the tube a series of elements K which are isolated from one another when the multi-ply tube is flattened by the sealing tools 2, 3 to form a series of containers each having within its multi-ply wall one of aforesaid elements K. Because the position of element K within its container is ordinarily of no significance, so long as there be one per package, it

may not be necessary to attach the elements K to either web, Fig. 10.

Referring to Fig. 13, the marginal edges of the webs W2, W3 removed, respectively, from the rolls R2, R3, are joined to form a tube T1 from which extend on the opposite sides thereof two seams M1; a similar tube T2 overlying tube T1 is formed by joining the marginal edges of the webs W4, W5 fed from the rolls R4, R5 to seams M1. Between the two nested tubes T1, T2, there are fed the strips S2, S3 removed from the rolls R6, R7. Below the end of the form 1, about which the webs are shaped, the multi-ply tube T3 comprising tubes T1, T2 is flattened at intervals longitudinally thereof by the sealing tools 2, 3, generally as described in connection with Fig. 1, to form a series of containers joined by a seal section UL which is transversely cut to form individual containers. Two sides of each container C6, Figs. 13 to 15, are sealed by the longitudinal seals M1, of the multi-ply tube T3 and the other two sides are closed by the upper and lower seals U, L formed as above described. At the same time each container is detached by cutting through one of the transverse seals, the strips S2, S3 within the multi-ply wall of the container are also cut so that each container has within its wall two strips or bands SC2, SC3, one on each side of the package and extending the length thereof.

The strips S2, S3 may be of any of the materials mentioned above in discussion of preceding modifications as suitable for the strips S, S1, Fig. 1, or the elements H, Fig. 4, or J, Fig. 7, and the webs W2—W5, which may be all of the same or of different materials, may each be of any of the materials mentioned previously as suitable for the webs W1, W2 of the preceding modifications. If the reinforcing strips or elements are not of thermoplastic material, the webbing of the transverse seals will have some adhesion to the reinforcement but not as much as if the reinforcing strips were also thermoplastic.

Preferably, all four webs W2—W5 may be of transparent film, such as Cellophane or Pliofilm, which is thermoplastic; in which event, the marginal edges of the webs are joined to form the inner and outer tubes T1, T2 by application of heat and pressure exerted, for example, by pairs of rolls between which the edges of the webs pass as they are fed downwardly over tube 1 by the sealing tools 2, 3.

The strips S2, S3, in this modification of my invention, are used principally for decorative or display purposes and to avoid need for use of expensive printed Cellophane or Pliofilm.

Another type of wafer package using but two webs is shown in Figs. 16 to 18; the web W1 is shaped about the form 1A and its edges joined to form a tube T4 along one edge of which projects seam M3; over this inner tube is formed, from a second web W2, an outer tube T5. The edges of web W2 are joined to the seam M3 of the inner tube. When the webs are of thermoplastic material, such as Cellophane or Pliofilm, this joinder of the margins of the webs to form a multi-ply tube is effected by application of heat and pressure. Between the inner and outer tubes may be introduced a premium coupon, tax stamp, souvenir, label or the like, generically represented by the element K.

The multi-ply tube T6 so formed is sealed transversely at intervals by sealing tools 2, 3, such as described in connection with Figs. 1 and 13, thus

to form a series of containers each joined by wide seal sections UL each of which is subsequently cut transversely of the multi-ply tube to detach a finished container, the lower and upper parts of each seal section forming, respectively, the upper seal U of one container and the lower seal L for the next container above it.

In the modifications thus far described, two or more webs are utilized to form a multi-ply tube, but if desired a single web may be utilized, as shown in Fig. 19. The web W8, of width somewhat greater than twice the circumference of the containers to be formed, is fed from a roll R8 and folded to produce a two-layer web which, when shaped about a form, such as form 1 of Fig. 1, and its edges joined, forms a multi-ply tube T7, Fig. 20. Between the two plies of the webbing, or between the inner and outer tubes formed from it, there may be introduced the strips S4, S5 of paper, fabric, foil, or other material mentioned as suitable for the strips S—S4 of Figs. 1 and 13, or for the elements G, H and J of Figs. 2, 4 and 7; or, if desired, between the two layers formed by folding of web W8 may be introduced a succession of elements or groups of elements generally as shown in Figs. 2, 4 or 7.

The web W8 may be, and preferably is, of Cellophane or Pliofilm to provide for visibility of the contents of the containers formed from it and of printing or decorative matter upon the strips or elements introduced between the plies of the webbing from which the container is formed. The containers formed from web W8 and strip S4, S5 are in appearance similar to C1, Fig. 1.

In any of the modifications above described, there may be introduced between the nested tubes a conditioning agent or agents serving to maintain or enhance the strength of the container walls; for example, steam or moisture may be introduced between the webs, particularly when of Cellophane, to prevent embrittlement. Another suitable conditioning agent is glycerine which is preferably introduced by incorporating it in the adhesive used, generally as shown in Figs. 2B—D, to attach a reinforcing strip or element within the multi-ply wall of the container; in like manner, moisture may be introduced within the multi-ply wall of the containers by its incorporation in the adhesive used to attach a reinforcing element or strip to one or both of the plies.

In any of the modifications, the number of plies in the container wall may be increased by using additional webbing and shaping it to form one or more additional tubes nesting with those illustrated.

In any of the modifications herein described, after introduction between them of one or more strips such as S—S5, or of elements G—K, the webs, before or after they are shaped into tubing, may be joined to each other throughout and to the introduced strips or elements in any known manner suited to the materials comprising the webbing and the interposed strip or elements.

What I claim is:

1. In the art of making containers, the method which comprises shaping web material and joining its marginal edges to form a multi-ply tube of at least two nested tubes which at least to substantial extent are free of attachment to each other, transversely sealing the multi-ply tube at intervals longitudinally thereof to define multi-ply containers, introducing filling into each of the containers between the aforesaid transverse sealing operations defining it, transversely

severing the multi-ply tube to detach the sealed and filled containers therefrom in succession, and in advance of the detachment of each filled and sealed container introducing between the web material forming said nested tubes sheet material which is retained within the multi-ply wall of that container.

2. In the art of making containers, the method which comprises shaping web material and joining its marginal edges to form a multi-ply tube of at least two nested tubes which at least to substantial extent are free of attachment to each other, introducing between the web material forming said two tubes a succession of elements of sheet material spaced longitudinally of said multi-ply tube, transversely sealing the multi-ply tube at intervals longitudinally thereof to define a succession of multi-ply containers each having at least one of said elements within its multi-ply wall, introducing filling into each of the containers in the interval between the successive aforesaid transverse sealing operations defining it, and severing the multi-ply tube in succession to detach therefrom sealed and filled containers each having between plies of its multi-ply wall at least one of said elements of sheet material.

3. In the art of making containers, the method which comprises shaping web material and joining its marginal edges to form a multi-ply tube of at least two nested tubes which at least to substantial extent are free of attachment to each other, introducing between the web material forming said two tubes a succession of elements of sheet material spaced longitudinally of said multi-ply tube, transversely sealing the multi-ply tube at intervals longitudinally thereof to define a succession of multi-ply containers, introducing filling into each of the containers in the interval between the successive aforesaid transverse sealing operations defining it, and transversely severing the multi-ply tube in succession to detach therefrom sealed and filled containers each having at least two of said elements within its multi-ply wall and spaced from each other longitudinally thereof.

4. In the art of making containers, the method which comprises shaping web material and joining its marginal edges to form a multi-ply tube of at least two nested tubes which at least to substantial extent are free of attachment to each other, introducing between the web material forming said nested tubes a succession of elements of sheet material spaced longitudinally of said multi-ply tube and each of length substantially corresponding with the periphery of said tube, transversely sealing the multi-ply tube at intervals longitudinally thereof to define a series of multi-ply containers, introducing filling into each of the containers in the interval between the aforesaid transverse sealing operations defining it, and transversely severing the multi-ply tube in succession to detach therefrom sealed and filled containers each having peripherally extending within its multi-ply wall at least one of said elements.

5. In the art of making containers, the method which comprises shaping web material and joining its marginal edges to form a multi-ply tube of at least two nested tubes which at least to substantial extent are free of attachment to each other, introducing between the web material forming said nested tubes a succession of reinforcing elements of sheet material spaced from each other longitudinally of said multi-ply

tube and each of length substantially corresponding with the periphery of said tube, transversely sealing the multi-ply tube at intervals longitudinally thereof to define a series of multi-ply containers, introducing filling into each of the containers in the interval between the aforesaid transverse sealing operations defining it, and transversely severing the multi-ply tube in succession to detach therefrom sealed and filled containers each having within its multi-ply wall two of said spaced elements extending peripherally of and reinforcing the ends of the container.

6. In the art of making containers, the method which comprises shaping web material and joining its marginal edges to form a multi-ply tube of at least two nested tubes which at least to substantial extent are free of attachment to each other, introducing between the web material forming said nested tubes elements of sheet material spaced peripherally thereof, transversely sealing the multi-ply tube at intervals longitudinally thereof to define a succession of multi-ply containers, introducing filling into each of the containers in the interval between the aforesaid transverse sealing operations defining it, and severing the multi-ply tube in succession to detach therefrom sealed and filled containers each having extending longitudinally within its multi-ply wall at least two of said peripherally spaced elements.

7. In the art of making containers, the method which comprises shaping web material and joining its marginal edges to form a multi-ply tube of at least two nested tubes which at least to substantial extent are free of attachment to each other, introducing between the web material forming said nested tubes reinforcing elements of sheet material spaced longitudinally and peripherally thereof, transversely sealing the multi-ply tube at intervals longitudinally thereof to define a series of multi-ply containers, introducing filling into each of the containers in the interval between the aforesaid transverse sealing operations defining it, and severing the multi-ply tube in succession to detach therefrom sealed and filled containers each having its corners reinforced by a group of said elements within its multi-ply wall.

8. In the art of making containers, the method which comprises shaping web material and joining its marginal edges to form a multi-ply tube of at least two nested tubes which at least to substantial extent are free of attachment to each other, introducing between the web material forming said nested tubes a succession of elements of sheet material spaced longitudinally of said multi-ply tube, transversely sealing the multi-ply tube at intervals longitudinally thereof between successive elements to define a succession of containers, introducing filling into each of the containers in the interval between the successive aforesaid transverse sealing operations defining it, and transversely severing the multi-ply tube between successive of said elements in succession to detach therefrom sealed and filled containers each sealed at both ends and having within its multi-ply wall at least one of said elements free of attachment to either of the seals at the ends of the container.

9. In the art of making containers, the method which comprises shaping web material and joining its marginal edges to form a multi-ply tube of at least two nested tubes which at least to substantial extent are free of attachment to each other, introducing between the web material

forming said nested tubes a succession of elements spaced longitudinally of said multi-ply tube and free of attachment thereto, transversely sealing the multi-ply tube at intervals longitudinally thereof between successive elements to define a succession of containers, introducing filling into each of the containers in the interval between the aforesaid transverse sealing operations defining it, and severing the multi-ply tube in succession to detach therefrom sealed and filled containers each having confined within its multi-ply wall by the transverse seals at least one of said free elements.

10. In the art of making containers, the method which comprises shaping web material and joining its marginal edges to form a multi-ply tube of at least two nested tubes which at least to substantial extent are free of attachment to each other, introducing between the web material forming said nested tubes at least one continuous web of sheet material, transversely sealing the multi-ply tube at intervals longitudinally thereof and of said container web to define a succession of multi-ply containers and to prevent displacement of said introduced web material within the multi-ply wall of each container, introducing filling into each of the containers in the interval between the successive aforesaid transverse sealing operations defining it, and concurrently transversely severing the multi-ply tube and the inter-ply web material to detach the filled and sealed containers each with at least one strip of said introduced web material extending the length thereof within the multi-ply wall.

11. In the art of making containers, the method which comprises shaping web material and joining its marginal edges to form a multi-ply tube of at least two nested tubes which at least to substantial extent are free of attachment to each other, introducing between the web material forming said nested tubes a succession of reinforcing elements of sheet material spaced from each other longitudinally of said multi-ply tube, transversely sealing the multi-ply tube at intervals longitudinally thereof to define a series of multi-ply containers and to fix the positions of said elements within the multi-ply walls of said containers for reinforcement at and adjacent the transverse seals, introducing filling into each of the containers in the interval between the successive aforesaid transverse sealing operations defining it, and transversely severing the multi-ply tube in succession to detach therefrom sealed, filled containers each locally internally reinforced at and adjacent its sealed ends by said web material introduced between the plies.

12. In the art of making containers, the method which comprises shaping web material and joining its marginal edges to form a multi-ply tube of at least two nested tubes which at least to substantial extent are free of attachment to each other, attaching to at least the web material forming one of said nested tubes for introduction between them a succession of elements of sheet material spaced from each other longitudinally thereof, transversely sealing the multi-ply tube at intervals longitudinally thereof to define a succession of multi-ply containers, introducing filling into each of the containers in the interval between the aforesaid transverse sealing operations defining it, and severing the multi-ply tube in succession to detach therefrom sealed and filled containers each having at least one of said elements attached thereto within its multi-ply wall.

13. In the art of making containers, the method which comprises joining the marginal edges of at least two webs to form a multi-ply tube of two nested tubes which are substantially free of attachment to each other, transversely sealing the multi-ply tube at intervals longitudinally thereof to define multi-ply containers, introducing filling into each of the containers in the interval between the successive aforesaid sealing operations defining it, transversely severing the multi-ply tube to detach therefrom sealed, filled containers, and in advance of the detachment of each filled, sealed container introducing between the web material forming said nested tubes reinforcing material which is retained within the multi-ply wall of each container.

14. In the art of making containers, the method which comprises joining the marginal edges of at least two webs to form a multi-ply tube of two nested tubes substantially free of attachment to each other, transversely sealing the multi-ply tube at intervals longitudinally thereof to define multi-ply containers, introducing filling into each of the containers in the intervals between the successive aforesaid sealing operations defining it, transversely severing the multi-ply tube to detach therefrom sealed, filled containers, and in advance of the detachment of each filled, sealed container introducing between the web material forming said nested tubes web-reinforcing material which is retained within the multi-ply wall of each container only by the transverse seals.

15. In the art of making containers, the method which comprises joining the marginal edges of at least two webs to form a multi-ply tube of two nested tubes substantially free of attachment to each other, transversely sealing the multi-ply tube at intervals longitudinally thereof to define multi-ply containers, introducing filling into each of the containers in the interval between the successive aforesaid sealing operations defining it, transversely severing the multi-ply tube to detach sealed, filled containers therefrom, and in advance of the detachment of each filled, sealed container introducing between the web material forming said nested tubes sheet material retained within the multi-ply wall of each container.

16. In the art of making containers, the method which comprises shaping transparent web material and joining its marginal edges to form a multi-ply tube of at least two nested tubes to substantial extent free of attachment to each other, introducing between the web material forming said nested tubes sheet material which is at least in part opaque, transversely sealing the multi-ply tube at intervals longitudinally thereof to define a succession of multi-ply containers, introducing filling into each of the containers in the interval between the successive aforesaid sealing operations defining it, and transversely severing the multi-ply tube to detach sealed, filled containers therefrom each having within its multi-ply wall said opaque material, visible from the exterior of the container through at least one of said plies and isolated from the filling in the container by at least another of said plies.

17. In the art of making containers, the method which comprises shaping transparent web material and joining its marginal edges to form a multi-ply tube of at least two nested tubes which to substantial extent are free of attachment to each other, introducing between

the web material forming said nested tubes a succession of individual elements of sheet material spaced longitudinally of said multi-ply tube and at least in part opaque, transversely sealing the multi-ply tube at intervals longitudinally thereof to define a succession of multi-ply containers, introducing filling into each of the containers in the interval between the successive aforesaid sealing operations defining it, and transversely severing the multi-ply tube to detach therefrom sealed, filled containers each having within its multi-ply wall, visible from its exterior through at least one of said plies and separated from the filling within the container by at least another of said plies, at least one of said elements of sheet material.

18. In the art of making containers, the method which comprises shaping transparent web material and joining its marginal edges to form a multi-ply tube of at least two nested tubes which to substantial extent are free of attachment to each other, introducing between the web material forming said two tubes at least one continuous strip of sheet material at least in part opaque, transversely sealing the multi-ply tube at intervals longitudinally thereof and of said strip to define a succession of multi-ply containers, introducing filling into each of the containers in the interval between the successive aforesaid sealing operations defining it, and concurrently transversely severing said strip and the multi-ply tube to detach sealed, filled containers, each having visible from its exterior through at least one of said plies and separated from its filling by at least another of said plies, the strip introduced within its multi-ply wall.

19. In the art of making containers, the method which comprises joining the marginal edges of at least two webs, at least one of which is transparent, to form a multi-ply tube of two nested tubes substantially free of attachment to each other, introducing between the webbing forming said nested tubes sheet material which is at least in part opaque, transversely sealing the multi-ply tube at intervals to define a series of containers, introducing filling into each of the containers in the interval between the successive aforesaid sealing operations defining it, and transversely severing the multi-ply tube to detach sealed, filled containers each having within its multi-ply wall said opaque material visible from the exterior of the container through the transparent webbing forming at least one of said plies and separated from the filling in the container by at least another of said plies.

20. In the art of making containers, the method which comprises shaping thermoplastic web material and applying heat and pressure to its marginal edges to form a multi-ply tube of two nested tubes substantially free of attachment to each other, introducing between the web material forming said nested tubes a succession of reinforcing elements of sheet material spaced from each other longitudinally of said multi-ply tube, applying heat and pressure to said multi-ply tube at intervals longitudinally thereof to form seal sections defining a succession of multi-ply containers, introducing filling into each of the containers in the interval between the aforesaid successive sealing operations defining it, and transversely severing the multi-ply tube to detach therefrom sealed, filled containers each having at least one of said reinforcing elements within its multi-ply walls.

21. In the art of making and filling containers,

the method which comprises shaping web material and joining its marginal edges to form a multi-ply tube of at least two nested tubes which at least to substantial extent are free of attachment to each other, transversely sealing the multi-ply tube at intervals longitudinally thereof to define multi-ply containers, cutting the multi-ply tube transversely through the transverse seals to detach individual containers each sealed at both ends, introducing filling into the innermost tube between successive transverse sealing operations, and introducing between said nested tubes reinforcing material retained within the multi-ply wall of each individual filled container by the transverse seals at its ends.

22. In the art of making containers, the method which comprises feeding web material from one or more sources of supply thereof to a station at which it is severed, while the web material is en route to said station performing the steps of shaping the web material and joining its marginal edges to form a multi-ply tube, transversely sealing the multi-ply tube at intervals longitudinally thereof to define multi-ply containers, introducing reinforcing sheet material between the web material forming adjacent plies, introducing filling into the containers in the intervals between the transverse seals defining them, and at said station transversely severing the webbing to detach therefrom sealed, filled containers each having said reinforcing sheet material between plies of its multi-ply wall.

23. In the art of making containers, the method which comprises feeding web material from one or more sources of supply thereof to a station at which it is severed, while the web material is en route to said station performing the step of shaping the web material and joining its marginal edges to form a multi-ply tube at least whose outer ply is transparent, transversely sealing the multi-ply tube at intervals longitudinally thereof to define multi-ply containers, introducing between the material forming adjacent plies sheet material having thereon markings visible through said outer ply, introducing filling into the containers between the transverse seals defining them, and at said station transversely severing the multi-ply tube to detach therefrom filled, sealed containers each having said sheet material isolated from its filling by at least one inner ply and with said markings on the sheet material visible through said outer transparent ply.

24. In the art of making containers, the method which comprises feeding web material from one or more sources of supply thereof to a station at which it is severed, while the web material is en route to said station performing the steps of shaping the web material and joining its marginal edges to form a multi-ply tube, transversely sealing the multi-ply tube at intervals longitudinally thereof to define multi-ply containers, before said transverse sealing introducing between the web material forming adjacent plies at least one continuous strip of web material, introducing filling into the containers between the transverse seals defining them, and at said station concurrently severing the multi-ply tube and the introduced strip to detach sealed, filled containers each having at least one strip of introduced web material extending from one to the other of its sealed ends between plies of its multi-ply wall.

25. In the art of making containers, the method which comprises feeding web material

from one or more sources thereof toward a station at which it is severed, while the web material is en route to said station performing the steps of shaping the web material and joining its marginal edges to form a multi-ply tube, introducing between the web material forming adjacent plies a succession of elements of sheet material spaced longitudinally of the web material, transversely sealing the multi-ply tube at

intervals longitudinally thereof to define a series of multi-ply containers, introducing filling into the containers between the transverse seals defining them, and at said station transversely severing the multi-ply tube to detach therefrom sealed, filled containers each having within its multi-ply wall at least one of said elements of sheet material.

JOHN S. STOKES.

CERTIFICATE OF CORRECTION.

Patent No. 2,260,064.

October 21, 1941.

JOHN S. STOKES.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 1, second column, line 52, for "repated" read --repeated--; page 7, second column, line 38, claim 23, for the word "step" read --steps--; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 25th day of November, A. D. 1941.

(Seal)

Henry Van Arsdale,
Acting Commissioner of Patents.