

Sept. 30, 1969

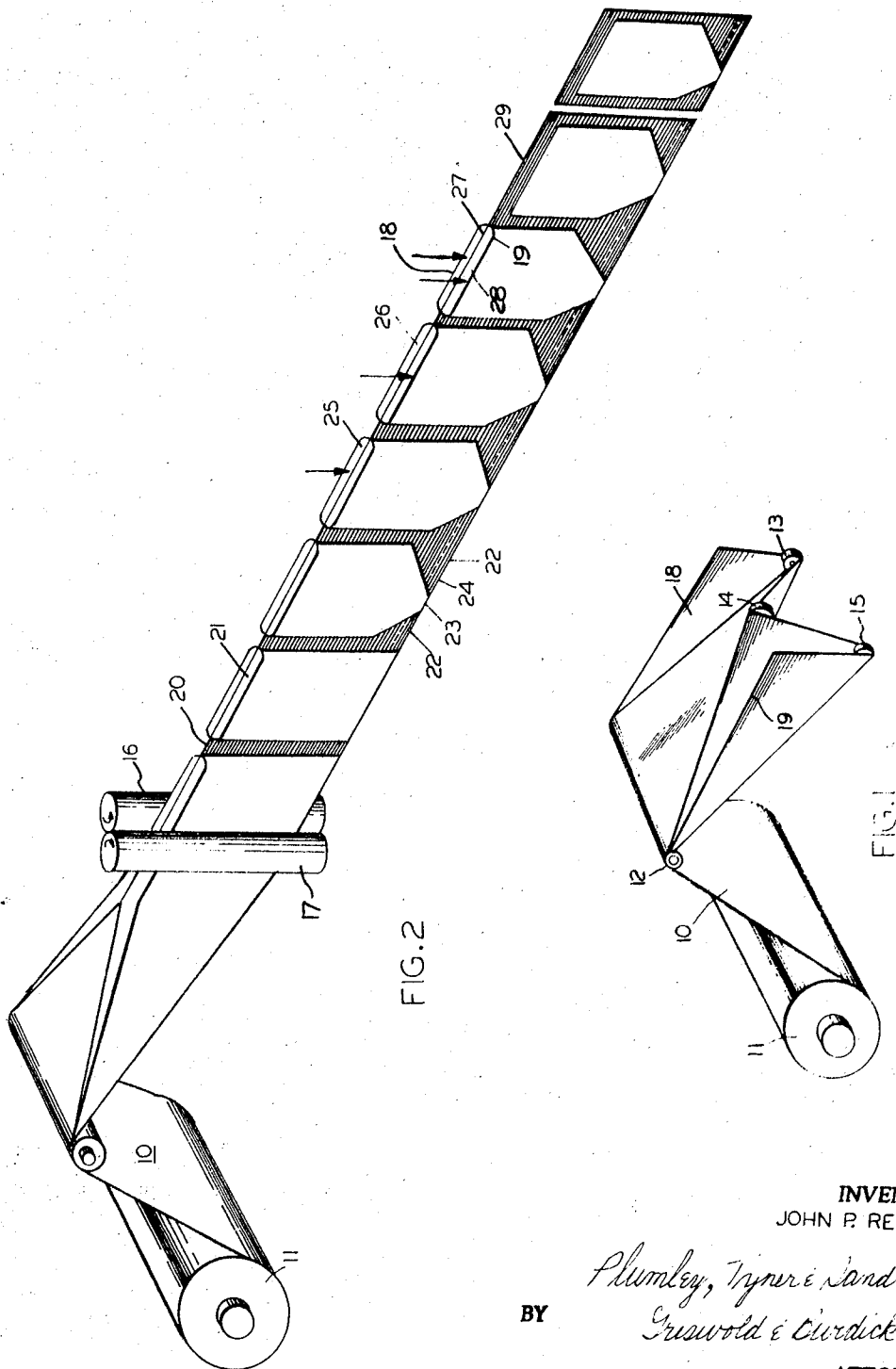
J. P. REPKO

3,469,768

DUAL COMPARTMENT CONTAINER

Original Filed Aug. 27, 1964

2 Sheets-Sheet 1



INVENTOR  
JOHN P. REPKO

BY *Plumley, Tyner & Sandt*  
*Griswold & Cirdick*

ATTORNEYS

Sept. 30, 1969

J. P. REPKO

3,469,768

DUAL COMPARTMENT CONTAINER

Original Filed Aug. 27, 1964

2 Sheets-Sheet 2

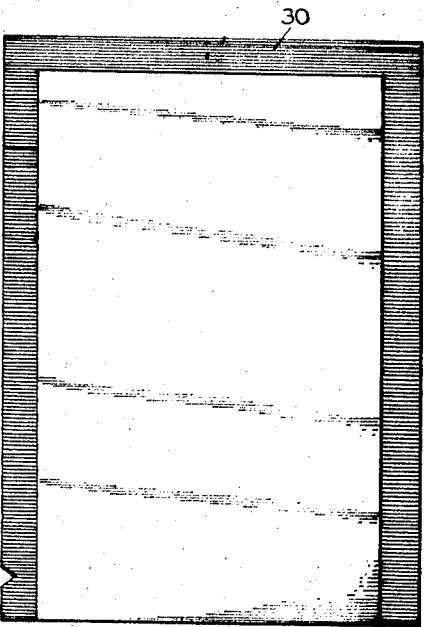


FIG. 3

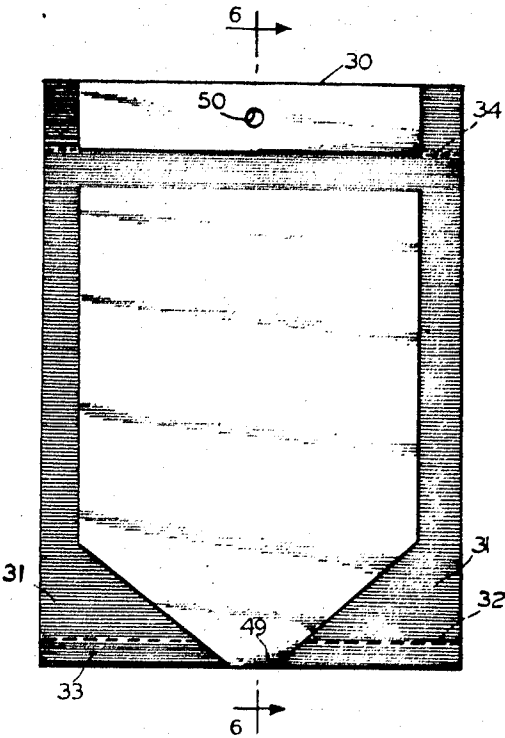


FIG. 4

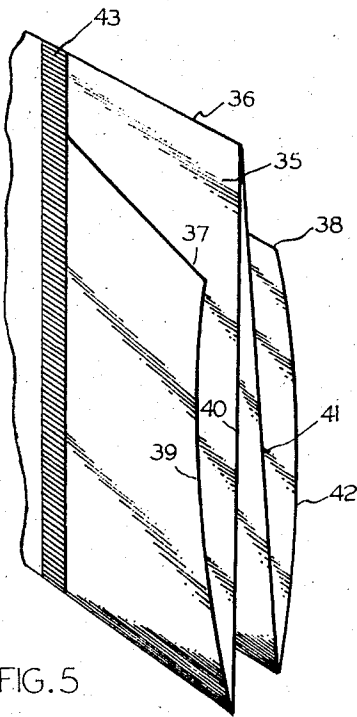


FIG. 5

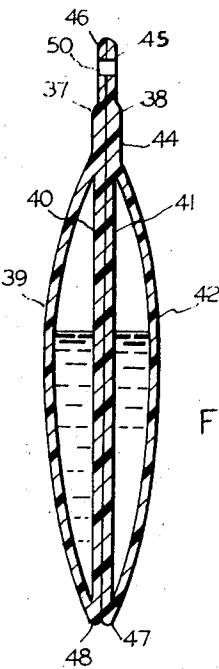


FIG. 6

INVENTOR  
JOHN P. REPKO

*Sumley, Hyner & Sandt*  
*Griswold & Burdick*

BY

ATTORNEYS

1

3,469,768

## DUAL COMPARTMENT CONTAINER

John P. Repko, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

Original application Aug. 27, 1964, Ser. No. 392,508, now Patent No. 3,390,507, dated July 2, 1968. Divided and this application Feb. 28, 1968, Ser. No. 709,073

Int. Cl. B65d 31/12, 37/00

U.S. Cl. 229—56

6 Claims

### ABSTRACT OF THE DISCLOSURE

Dual compartment containers are obtained by folding a continuous, sealable web along its longitudinal center line, while reversibly folding edge portions of said web to a height not extending beyond the edge of the center fold, to form four plies intermittently sealing a transverse strip of said folding web to bond the four plies together; the distance between the sealed strips being adjusted to the desired container width. After filling the container, the edge of the original web is sealed to the center fold. The container can be cut from the web, prior to or after filling, at the center line of the transverse.

The present invention relates to a novel container construction and a method for its preparation. More particularly the present invention relates to a dual compartment container made from a single web. This application is a division of application Ser. No. 392,508, now Patent No. 3,390,507, filed Aug. 27, 1964.

It is one of the objects of the present invention to provide a dual compartment container in which both compartments can be simultaneously filled, sealed, opened, and emptied. It is another object of the present invention to provide a method for the continuous preparation of such dual compartment containers using a roll of a single sealable web.

The objects of the present invention are accomplished by folding a continuous sealable web along its longitudinal center line, while reversibly folding two edge panels back to the center fold of said web to a height not extending beyond the edge of the center fold to form four plies, intermittently sealing a transverse strip of said four plies to each other to obtain the desired container width. In one embodiment of the present invention the reversibly folded edges are partially sealed and easy opening means such as notches or perforations included in these sealed edges. The resulting dual compartment container formed by two consecutive transverse seals is then filled and the edges of the web parallel to the edge of the center fold sealed to the center fold.

As will be illustrated in greater detail hereinafter, the open container need not be separated from the continuous web until after filling and sealing. The two compartments of the container may be filled consecutively or simultaneously.

Reference is directed to the accompanying drawings for a more detailed description of the preferred embodiments of the present invention in which:

FIGURE 1 is a schematic drawing of the folding of the continuous web to form the plies of the dual compartment container of the present invention;

FIGURE 2 is a schematic drawing of the folding of the continuous web to form the plies of the dual compartment container, the heat sealing of the web to form the open dual compartment container, the filling of the container, and the final heat sealing and separation of the filled container, the entire operation being carried out continuously;

2

FIGURE 3 is a plan view of the basic dual compartment container of the present invention;

FIGURE 4 is a plan view of another dual compartment container having triangular corner seals and an easy opening perforation allowing the simultaneous emptying of both compartments.

FIGURE 5 is a partial sectional view of the container of FIGURE 4 during fabrication; and

FIGURE 6 is a schematic view of the dual compartment container of FIGURE 4 after filling and sealing along line 6—6 wherein the container is made from a continuous thermoplastic resin web.

Referring to FIGURES 1 and 2, a continuous web 10, having sealable surfaces, is fed from roll stock 11 over roll 12 to the folding wheels 13, 14, and 15. The center folding wheel 14 assisted by the side folding wheels 13 and 15 folds the web downwardly along its longitudinal center line. The side folding wheels 13 and 15 assisted by guide rolls 16 and 17 fold the edges of the web 18 and 19 upwardly to the upper edge of the center fold or to any desired lower height of the center fold, thereby forming the four plies of the dual compartment container. The four plies of the folded web are then intermittently sealed to each other in the transverse direction to form the side seals 20 of the dual compartment containers, such as container 21. Thereafter or simultaneously therewith parts of the lower reversibly folded edges are sealed to form triangular seals 22 giving the compartments the opening spout 23. Although triangular corner seals are shown in the attached drawings it will be apparent that these constitute a preferred embodiment and that other shapes of edge seals or no edge seals are feasible. The sealed corners are then perforated along line 24 to provide an easy opening method for the simultaneous opening of both compartments of the container.

The two compartments of the container formed are either consecutively filled as shown in containers 25 and 26, or simultaneously filled as shown in container 27. The edges of the original web 18 and 19 are then sealed to the center fold 28 to form seals 29. The sealed container is parted from the continuous web by bisecting the transverse seals forming the side edges of the container.

FIGURES 3 and 4 show two forms of dual compartment containers made in accordance with the method of the invention. In FIGURE 3 the edges of the original web are aligned with the edge of the center fold 30. In FIGURE 4 a dual compartment container is illustrated in which the outer edges of the original web 34 are brought up to below the edge of the center fold 30 and the corners of the folded lower edges 31 sealed to provide a spout for the contents. Perforation 32 results in the forming of a tear strip 33 to allow easy opening and simultaneous emptying of the contents. In both FIGURE 3 and 4 the two compartments of each container have sealed side edges with the exception of the spout area.

FIGURE 5 shows the container of FIGURE 4 in production. The web 35 has been folded downwardly forming center fold 36 and the edges of the web 37 and 38 have been brought up to below the edge of the center fold to form the four plies 39, 40, 41 and 42 of the dual compartment container which has been sealed along one of its side edges 43.

FIGURE 6 shows a sectional view of the container illustrated in FIGURE 4 made out of a heat sealable thermoplastic resin web. The four plies of the container 39, 40, 41, and 42 are sealed together to form the top seal 44. It will be apparent that the side seals (such as seal 43 in FIGURE 5) as well as the triangular corner seals (such as seal 31 in FIGURE 4) also result in the sealing of the inner plies when employing a heat sealable thermoplastic resin web. The edges of the original web 37 and 38 are

sealed to the center fold 45 below its top edge 46. The spouts of the two compartments are at the edges of the reverse folds 47 and 48. The contents of the two compartments of the container are separated by plies 40 and 41. Tearing of the serration 32 in FIGURE 4 into the spouts 49 allows the simultaneous emptying of the contents. A hole 50 in the extended center fold allows easy storing of the container on a rack.

The continuous web employed is preferably made from a thermoplastic resin such as a polyolefin, polyvinyl halide, polyvinylidene halide, copolymers and interpolymers of a vinylidene halide and a vinyl halide, rubber hydrochloride, a cellulose ester or similar resin. Resin coated paper, cellophane, polyester film or foil can also be employed in the formation of the dual compartment containers of the present invention. Thus, the continuous web may be made of two or more laminated layers such as, for example, a web of cellophane, polyethylene film, metal foil, and a vinyl halide layer. Where a resin coated web is employed, it is not essential that both sides of the web have a continuous coating of resin thereon. Thus it is possible to employ a web to which transverse strips of sealable resin has been applied in the areas to be subsequently sealed together. The coating resins furthermore need not be thermoplastic in nature, but can be of the thermosetting adhesive type. Of the thermoplastic resins that can be employed as webs per se or as coating resins, polyolefins, and particularly polyethylenes, are preferred. Where a resin coated foil or paper is employed as the web, it is in general preferred to employ the web in such a way that the resin coating be on the side of the plies contacting the contents of the compartments to permit the sealing-in of the container contents. A resin coated strip in which the resin can be thermoplastic or thermosetting in nature, can be employed on the reverse side of the web to assure the sealing of all four plies at the transverse seal of the web. Thermoplastic resin webs or two-way coated papers or foil webs are preferred since they most readily permit the bonding of the two compartments to each other, thereby giving greater rigidity and form retention to the container.

The advantages of the illustrated method of forming dual compartment containers will be apparent from the foregoing description of the invention. Thus the containers are formed from readily available continuous web roll stock by simple mechanical means. The containers are formed continuously and the method is readily employed in combination with an automatic filling station. The containers produced by the present invention allow the opening and emptying of both compartments simultaneously, and therefore the instantaneous mixing of the contents on opening, which is of significant advantage in many commercial compositions which are found in situ. Furthermore, the sealing of the four plies results in packages of greater dimensional stability and rigidity, thereby improving the shipping and storing of such packages.

The dual compartment containers of the present inven-

tion are useful in the packaging of a wide variety of liquid or solid materials such as foodstuffs, medications, cosmetics, household chemicals and the like. The containers are of particular utility in the packaging of two component mixtures which are preferably not mixed until used because the components are not stable or storable in each others presence. Thus the dual compartment containers are of significant utility in instant soft drinks in which the flavor component and the carbonation component are separately packaged.

Some of the features illustrated in the drawings and description, such as the perforation and the triangular corner seals, constitute preferred embodiments of the dual compartment containers of the present invention. Alternate means for accomplishing these and other embodiments of the present invention will be clearly apparent to those skilled in the art. Although the invention has been described in terms of heat seals, it is to be realized that similar seals can be obtained by means of appropriate adhesives.

What is claimed is:

1. A dual compartment container of generally rectangular form comprising four plies of a single web, formed by folding said web along its centerline and reversibly folding the edges of web to the center fold to a height extending from below to up to the edge of the center fold, the edges of the container parallel to the edge of the center fold being sealed to the center fold subsequent to the filling of the container the edges of the four plies of the container traverse to the edge of the center fold being sealed to each other.

2. The dual compartment container of claim 1 wherein a part of the reversibly folded edge is sealed and contains means for easy opening of the packages.

3. The dual compartment container of claim 2 wherein the reversibly folded edge seals are in the form of triangular corner seals and contain perforations in a line parallel to the reversibly folded edges.

4. The dual compartment container of claim 1 wherein the web is a thermoplastic resin web.

5. The dual compartment container of claim 1 wherein the web is a thermoplastic resin coated paper or foil.

6. The dual compartment container of claim 1 wherein the web is a laminated web.

#### References Cited

##### UNITED STATES PATENTS

|           |         |              |           |
|-----------|---------|--------------|-----------|
| 2,015,972 | 10/1935 | Sodergren    | 229—56    |
| 2,714,557 | 8/1955  | Mahaffy.     |           |
| 2,915,098 | 12/1959 | McKay et al. | 150—5     |
| 3,274,004 | 9/1966  | Curler       | 229—3.5 X |

DAVID M. BOCKENEK, Primary Examiner

U.S. Cl. X.R.

206—47; 279—66