Sept. 27, 1938. D. CORDIANO ET AL 2,131,343

CONTAINER AND METHOD OF MAKING THE SAME

Filed May 26, 1937

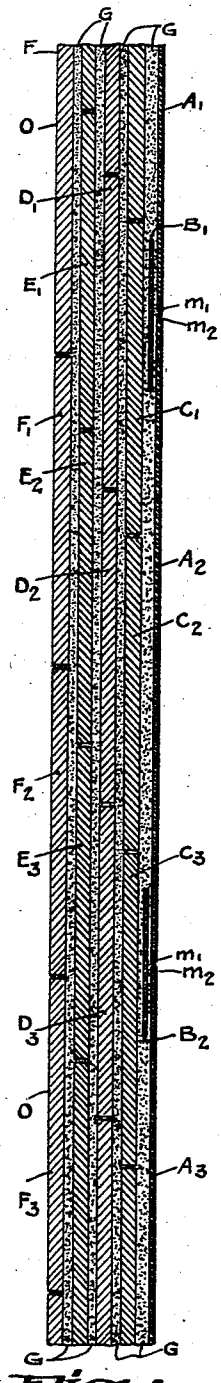


Fig. 1

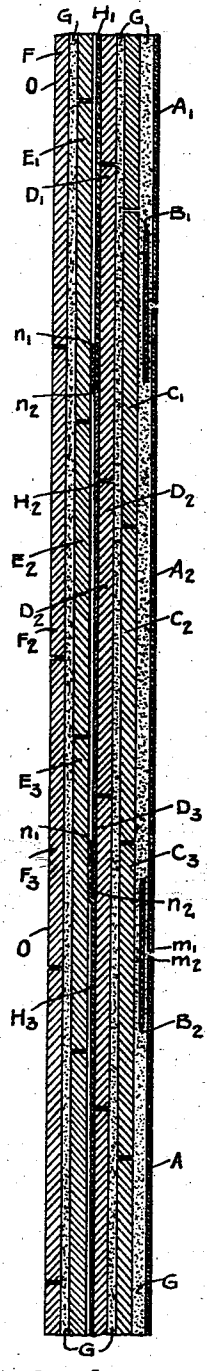


Fig. 2

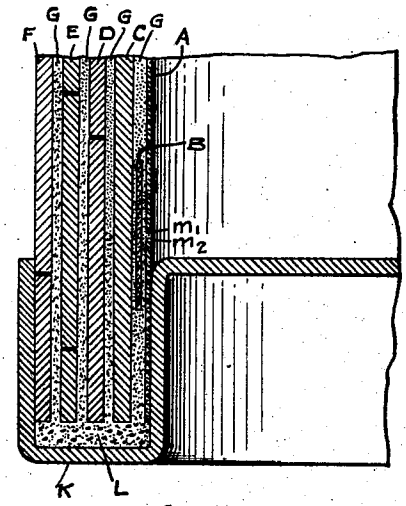


Fig. 3

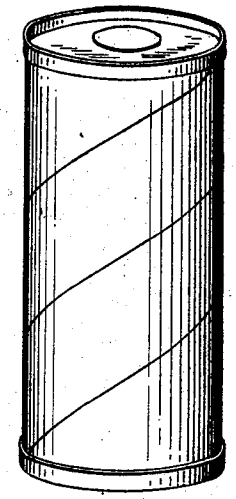


Fig. 4

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Patented Sept. 27, 1938 2,131,343

UNITED STATES PATENT OFFICE

2,131,343

CONTAINER AND METHOD OF MAKING THE SAME

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Application May 26, 1937, Serial No. 144,782

8 Claims. (Cl. 229—3.5)

This invention relates to improvements in containers and methods of making the same, being particularly directed to laminated fibre containers for fluid or oil and grease-containing products.

Up to the present time, considerable difficulty has been entailed in the production of containers of the class and for the purpose described, since the procedure in the production of the same has been directed primarily to chemical treatment for oil and water-proofing the fibre board itself or linings of different porous materials therefor, by the application of compositions serving to seal the interstices or pores of such fibre board or linings, particularly the exposed layers. In general, such compositions have the inherent weakness in that they tend to introduce foreign chemicals or ingredients into the product carried in the container either through reaction with the material or through separation from the layer pores or surfaces to which they have been applied, with resulting contamination of the products.

It is an object of this invention to provide for an oil and water-proof container of the spiral wound laminated wall formation, through the application of a lining of Cellophane, in conjunction with the fibre or chip board layers, and serving to provide an oil, grease and water-proof sealing medium for the container, the lining and the respective fibre or chip-board layers being successively and concentrically spirally wound and adhesively united at their adjacent faces.

Specifically, it is an object of this invention to provide a container formed of laminated fibre board, and having its inner lining of Cellophane wound so as to provide a butt-joint relationship of its edges, and with an additional layer of Cellophane co-extensive with the butt-joint of the inner Cellophane layer, the respective inner and intermediate Cellophane layers being united to one another at their co-extensive surfaces and to the fibre board layer with adhesives.

Still further, it is an object of this invention to provide, in conjunction with the Cellophane inner lining aforesaid, a layer or lining of Cellophane intermediate of the several laminations of fibre board forming the body of the container, said Cellophane layer being wound in butt or lap relationship and maintained by pressure and without any adhesive in its position between the fibre layers, such Cellophane layer serving as a definite water-proofing intermediate wall for the container.

These and other advantages, capabilities and features of the invention will appear from the subjoined detailed description of one specific embodiment thereof illustrated in the accompanying drawing, in which

Figure 1 is an elevation in cross-section of a preferred embodiment of our invention.

Figure 2 is an elevation in cross-section of a modified form of our invention.

Figure 3 is an elevation in cross-section showing a container formation incorporating our invention.

Figure 4 is a perspective view of a container incorporating our invention.

Referring to the reference characters in the drawing, numeral 10 discloses the laminated wall formation for containers adapted to carry fluids or solids of oily or greasy composition; said wall formation being produced by the spiral winding of material along the mandrel forming lengths of a cylindrical construction, which may be cut into sections of desired length. The material applied is generally in the form of rolls having a width less than that of the desired sections to form the body of the container.

As shown in Figure 1, the laminated wall built up by spiral winding comprises of an inner layer or lining A of substantially water and oil-proof Cellophane, coated on its rear face with an adhesive G, the spirally wound sections A—1, A—2 and A—3, being wound about a mandrel so that the adjacent edges *m*—1 and *m*—2 of the respective sections are in abutting relationship.

The next adjacent layer B is formed of water and oil-proof Cellophane coated on its faces with an adhesive G, the respective sections B—1, B—2, etc., forming the spiral winding, being spaced from one another and being disposed so as to be coextensive with the edges *m*—1 and *m*—2 of the sections A—1, A—2 and A—3 of the inner Cellophane layer A, thereby to back up and form a seal at the butt-joint between such sections.

A series of layers, C, D, E and F, formed of fibre or chip board are next formed by applying in spiral winding respectively, sections C—1 to C—3, D—1 to D—3 and E—1 to E—3, each of such sections having glue G on their inner faces, the spiral winding being arranged so that the butt-joints of the sections of each layer are spaced with respect to the butt-joints of the section of the next adjacent layer. The number of layers of fibre or chip board may be varied, dependent upon the thickness and rigidity of the laminated wall desired.

The exposed surface O of the outer layer F may be coated with a composition for sealing the pores thereof as, for example, varnish or the like, although in general the label or paper cover which may be applied to such outer layer with an adhesive may be of such impervious stock as to eliminate the necessity for coating such outer layer, or a layer of asphalt may be applied on the inner face of the layer E to act as an adhesive and waterproofing medium for the wall structure.

In the modification shown in Figure 2, the laminated wall construction involved essentially is

the same as that shown in Figure 1, except that there is disposed between layers D and E a layer H formed of water-proof Cellophane, the sections H—1, H—2 and H—3 preferably being lap wound at the edges *n*—1 and *n*—2 thereof. It is pointed out that layer E has no glue coating on its inner surface, as differentiated from the rest of the fibre or chip board layers, so that the Cellophane layer H has no adhesive between it and the adjoining faces of layers D and E, such Cellophane layer being maintained in position only by the pressure of the winding and the surfaces of the fibre or chip board layers contacting therewith.

It is pointed out that the inner layer A of Cellophane, the butt-joints of which are sealed by layer B, serves as a grease and oil-proof inner wall formation to prevent seepage outwardly through the fibre or chip board walls, while the layer H of Cellophane serves as a water-resistant formation serving to prevent the penetration of water or moisture from the exterior towards the interior of the container.

As shown in Figure 3, the end of a section formed by transversely cut elongated wall formation to provide a cylinder for a container and having a raw edge, by virtue of the cutting operation, is coated or sealed with an adhesive L of the nature of relatively water-free latex or vegetable matter, so that liquid or moisture may not penetrate downwardly through the layer formation of the wall, while at the same time providing means for causing cover K, which is crimped thereon, to be rigidly adhered thereto.

It is obvious that various changes and modifications may be made to the details of construction without departing from the general spirit of the invention as set forth in the appended claims.

We claim:

1. A laminated wall construction for containers, comprising a body of fibrous material adhesively united to an inner layer of Cellophane formed of spiral sections, the adjacent edges of said sections being in abutting relationship, and an intermediate layer of Cellophane formed of spaced spiral sections disposed between and adhesively united to the inner layer of Cellophane and the adjacent layer of fibrous material, the sections of said intermediate layer of Cellophane being co-extensive with the adjacent edges of the sections forming the inner layer, thereby to form a seal at the butt joints of said inner layer.

2. A laminated wall construction for containers, comprising a body of fibrous material adhesively united to an inner layer of Cellophane formed of spiral sections, the adjacent edges of said sections being in abutting relationship, and an intermediate layer of Cellophane formed of spaced spiral sections disposed between and adhesively united to the inner layer of Cellophane and the adjacent layer of fibrous material, the sections of said intermediate layer of Cellophane being co-extensive with the adjacent edges of the sections forming the inner layer, thereby to form a seal at the butt joints of said inner layer, the sections of the intermediate layer of Cellophane being narrower than the sections of the inner layer.

3. In a laminated wall construction for containers, a series of layers of fibrous material adhesively united to one another, and an inner lining for said construction comprising a layer of Cellophane formed of a series of spirally wound spaced sections adhesively united to the inner layer of fibrous material, and a layer of Cellophane formed of spiral sections wound and positioned so as to provide a butt formation, the abutting edges of said sections being co-extensive with the sections of the first named Cellophane layer, said last-named Cellophane layer being adhesively united to the inner layer of said fibrous material and said first-named Cellophane layer.

4. A method of forming a laminated construction for containers comprising spirally winding a series of Cellophane sections to provide abutting relationship between the edges thereof, applying a second layer of Cellophane in spaced spiral winding to be co-extensive to the abutting edges of said first named Cellophane layer and spirally winding successively sections of fibrous material to form a series of fibrous layers, there being applied to the underface of each of the sections of material forming the respective layers, except the first Cellophane layer, an adhesive coating to firmly unite the respective layers.

5. A laminated wall construction for containers, comprising a layer of Cellophane formed of spirally wound sections, the edges of which are in abutting relationship, an adjacent layer of Cellophane formed of spirally wound spaced sections co-extensive with the abutting edges of said first-named layer sections, a series of layers of fibrous material spirally and concentrically wound over said first-named layers and an intermediate layer of Cellophane, formed of spirally wound sections, the edges of which are in lap relationship disposed intermediate of the series of fibrous layers, all of the faces of adjoining layers being adhesively united, except the last-named Cellophane layer and the faces of the fibrous layers adjacent thereto.

6. A laminated wall construction for containers, comprising a series of layers of fibrous material formed of concentric spirally wound sections, and a layer of Cellophane formed of spirally wound sections disposed intermediate of the series of fibrous layers, all of the faces of adjoining layers being adhesively united except those of the Cellophane layer and the faces of the fibrous layers adjoining the same.

7. A laminated wall construction for containers, comprising a series of layers of fibrous material formed of concentric spirally wound sections, the edges of which are in butt relationship, and a layer of Cellophane formed of spirally wound sections, the edges of which are in lap relationship, disposed intermediate of the series of fibrous layers, all of the faces of adjoining layers being adhesively united except those of the Cellophane layer and the faces of the fibrous layers adjoining the same.

8. A laminated wall construction for containers, comprising a series of layers of fibrous material formed of concentric spirally wound sections, an inner lining for said construction comprising a layer of Cellophane formed of spirally wound sections, and a layer of Cellophane formed of spirally wound sections disposed intermediate of the series of fibrous layers, all of the faces of adjoining layers being adhesively united except the last-named Cellophane layer and the faces of the fibrous layers adjoining the same.

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