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L. L. McGRADY

2,218,246

WINDOW CONTAINER STOCK AND CONTAINER MADE THEREFROM

Filed March 3, 1936

FIG. 1.

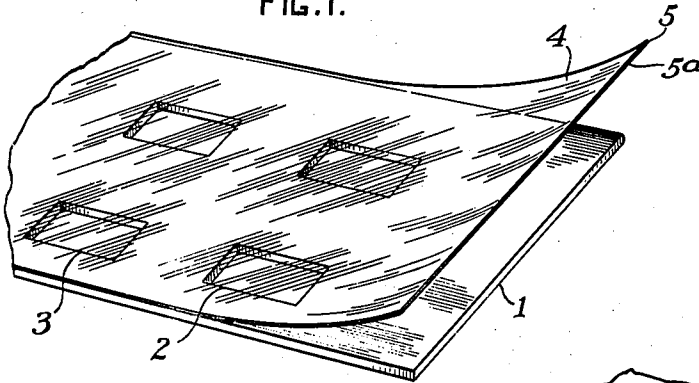


FIG. 2.

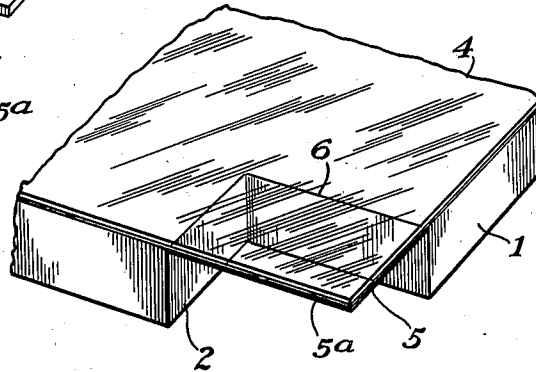


FIG. 5.

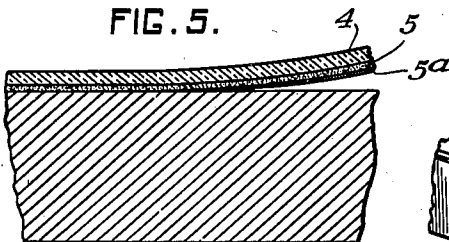


FIG. 3.

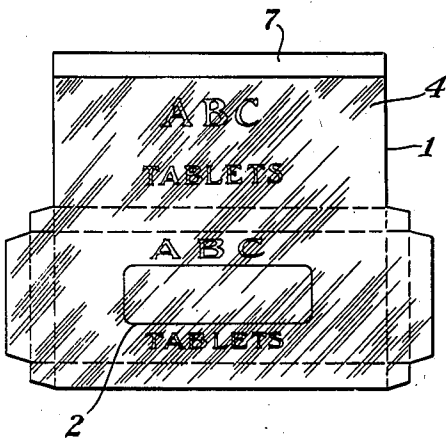
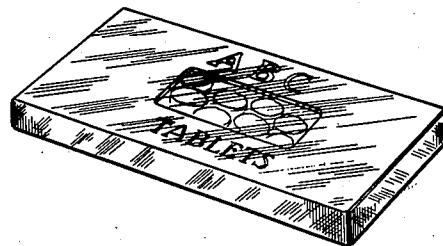


FIG. 4.



BY

INVENTOR.
Leon L. McGrady

Newton M. Perrins
Daniel C. Mayne
ATTORNEYS

UNITED STATES PATENT OFFICE

2,218,246

WINDOW CONTAINER STOCK AND CONTAINER MADE THEREFROM

Leon L. McGrady, Rochester, N. Y., assignor, by mesne assignments, to Eastman Kodak Company, Rochester, N. Y., a corporation of New Jersey

Application March 3, 1936, Serial No. 66,857

3 Claims. (Cl. 205-44)

This invention relates to the packaging art and more particularly to a sheet stock especially adapted for the manufacture of window type cartons, boxes, bags and other types of containers.

appearance. Other objects will appear herein-after.

These objects are accomplished by the following invention which, in its broader aspects, comprises the lamination of a thin, or relatively thin, sheet of transparent material provided on one side with a thermoplastic adhesive coating, over the entire surface of a sheet of pasteboard, paper or other suitable stock which has previously been perforated to provide window openings or other types of perforations therein and the manufacture of containers therefrom.

In the following example and description I have set forth several of the preferred embodiments of my invention, but they are included merely for purposes of illustration and not as a limitation thereof.

In the accompanying drawing:

Fig. 1 is a perspective view illustrating the method of laminating the transparent sheet material to the base.

Fig. 2 is a perspective view in section illustrating the manner in which the transparent material is perfectly sealed around the edges of the cut-out or window portion of the stock.

Fig. 3 is a plan view of a window carton blank produced in accordance with the invention.

Fig. 4 is a perspective view illustrating the completed package formed from the blank shown in Fig. 1.

Fig. 5 is a greatly exaggerated sectional view further illustrating the type of resin-coated material used in the invention and the manner of its application to the material of the blank.

Referring to Fig. 1, there is illustrated a sheet of cardboard, paper, or similar material having a series of window openings or perforations 2, 3, etc. stamped or cut out of the base. A sheet of thin, flexible, transparent material such, for example as a cellulose organic derivative sheet (shown in exaggerated thickness) and having coated thereon a thin layer of thermoplastic resinous adhesive material 5, is superimposed on base sheet 1 and adhesively joined thereto over its whole upper surface by the application of heat and pressure, for example, as by rolling, the temperature being sufficient to render the adhesive coating tacky. This sheet material is also provided with an extremely thin cellulose derivative protective coating 5a, superimposed on the resin which provides a smooth non-tacky surface on the sheet at those portions thereof which cover the window openings 2, 3, although where the sheet is laminated to the base this thin coating simply merges with the resin, as more

As now manufactured, the window type of container is produced by stamping out openings or windows in a strip of cardboard, paper, waxed paper or similar materials, the material generally being so cut as to permit folding into a box, bag or other desired form. The window portion of such containers is, according to present practice, attached over the cut-out portions by sealing a strip of relatively thin, flexible, transparent material such as regenerated cellulose or cellulose derivative sheeting to the paper or cardboard base by means of special cements. The cement is deposited, either in the form of continuous stripes along the edges of the stock in proximity to the cut-out openings, or is applied around the edges of the openings by means of a die, the sheeting being thereafter laid over the moist cemented portions and secured thereto by means of gentle pressure. When containers are produced in this manner it is extremely difficult, if not impossible, to obtain an even, continuous application of the cement to the transparent material and the paper or cardboard, with the result that the window portion is extremely liable to be unevenly and imperfectly cemented. Because of this the window covering is easily deformed and, if cementing is incomplete, may be easily torn away from the base material in use, thus permitting the penetration of dirt and moisture into the interior of the package with resultant contamination of the goods contained therein. Furthermore, the use of cements customarily employed with this type of window covering material usually contain appreciable amounts of volatile solvents which are liable to produce distortion or wrinkling of the sheet and thereby adversely affect its transparency.

It is the principal object of the present invention to obviate the above mentioned difficulties and to provide a type of composite carton or container stock which will not have the defects above referred to. A further object is to provide a type of sheet stock adapted for the manufacture of cartons, boxes, bags and other containers having window portions therein and in which the transparent window material is perfectly and completely sealed around the edges of the cut-out portions. A still further object is to provide a type of window container having an enhanced resistance to moisture and a glossy attractive

fully illustrated in Fig. 5. This particular type of resin-coated sheet and its method of preparation forms no part of the present invention, but is the subject of a copending application in the names of G. F. Nadeau and C. D. Starck, Serial No. 68,696, filed March 13, 1936.

Referring to Fig. 2, which is an exaggerated section through the completed carton stock, it will be seen that in accordance with my invention the transparent sheeting 4 is sealed completely up to the edges of the window opening, thus precluding the presence of any voids between the transparent material and the base which could give rise to tearing away from the cardboard or paper base 2. Inasmuch as I employ no cements of any kind, but depend exclusively upon the resin coating 5 of the transparent sheet to obtain adhesion, a perfect covering of the window opening is made possible. It will also be noted from this view that the resin coated surface of the transparent material projects infinitesimally below the plane of the adhesive layer in contact with the base sheet. The extremely thin protective coating 5a forms a smooth wear-resistant surface which is unaffected by the slight friction incident to the movement of any of the material contained in a package made from this type of carton stock. I wish particularly to emphasize the fact that my invention makes possible a perfect line of sealing 6 right up to the very edge of the window opening without voids or "let-goes" and without any distortion whatever of the sheeting or base, a result which is not possible by employing the customary sealing cements in accordance with prior art practice.

Fig. 5 further illustrates the manner of applying the resin coated sheeting to the cardboard or paper base. It will be seen from this view that the protective cellulose derivative coating 5a simply merges with the resin coating 5 when the sheet 4 is applied by means of heat and pressure.

Figs. 3 and 4 illustrate respectively, a completed carton blank and a carton produced by appropriately folding said blank. It will be particularly noted that the carton is thus completely covered on its outside surface, except for a narrow strip 7 to permit pasting, by a tightly adhering completely transparent cellulose derivative sheet.

It will be evident that many modifications are possible within the scope of my invention. For example, instead of laminating the resin-coated sheet to the outer surface of the base, I may laminate it to the inner surface thereof and thus completely cover the inside of the carton which is eventually made therefrom. In some instances I may even laminate the transparent material to both sides of the base, thus producing a double window covering. In another modification I may employ a type of sheeting which has the above-described resin coating on one side and a moistureproof coating on the other side, this material being particularly adapted for the manufacture of moisture resistant packages.

While I have found it convenient to illustrate my invention by reference to the use of a particular type of transparent material, namely, cellulose derivative sheeting, particularly that composed of cellulose acetate, it is broadly applicable to the use of any type of transparent material such as regenerated cellulose, transparent latex, glassine and many others, so long as it is susceptible of having deposited thereon a thin layer of thermoplastic resin in the manner illustrated herein. However, I prefer to use cellulose acetate sheeting because of its inherently greater

resistance to the transmission of moisture than many similar materials.

It will be apparent that my improved construction has many advantages over the ordinary type of carton stock. Due to the fact that the transparent sheet is completely joined to the cardboard or paper base over its whole surface, as distinguished from the prior art practice of cementing the transparent material only at segregated areas, there can be no depressions at the window openings (especially in that form of cartons which have the transparent material on the outside), to invite destruction of the window material itself or to pull it away from the base, since, there being a perfectly smooth outside surface, objects coming in contact therewith simply slide over the cut-out portions without catching therein or causing the material to break or let go. This same advantage is also present in that type of carton in which the transparent material is laminated to the inside, since in this case the contained material finds no depressions in which to lodge and if there is any movement of the contained material, it also simply slides smoothly past the junction of the transparent material and the base and can cause no breaking away or lifting of the transparent material from the base. Even in the type of carton in which the transparent material is laminated to the outside, the perfect sealing obtained in accordance with the invention precludes any tearing away from the base. This is particularly important where the cartons are used in filling machinery, since it precludes the waste ordinarily incident to destruction of containers in the filling operation. Experience has shown that even the slight friction of such materials as candy, foodstuffs and the like, when fed into the prior art type of containers by automatic machinery, often caused breaking of the window portion, or at least lifting of the transparent material from the base with the result that an imperfect package is obtained. This serious disadvantage is completely eliminated in the type of carton herein described.

Another collateral feature of cartons produced in accordance with my invention is that they have a beautiful glossy appearance and increased wearing qualities due to the presence of the transparent material on either the inside or outside thereof, or both. In addition, the transparent material gives a brilliance and depth of tone to any printed matter which may appear on the package.

My improved carton is especially well adapted for the production of ordinary types of cartons produced from cardboard, paper, waxed paper, and various other materials. It is also peculiarly adapted for the manufacture of the so-called "revelation" type of container such as those used for packaging bread and other food-stuffs. Many other uses and modifications will be apparent to those skilled in the art.

What I claim is:

1. A window carton comprising side and end walls and having a window opening in at least one of said walls, said carton comprising a one piece blank composed of a paper base with at least one window opening therein having laminated over the whole area of its outside surface including the window opening, and forming a perfect seal at the marginal edges of the opening a flexible, moisture-resisting, transparent sheet of cellulose organic derivative material which is inherently unsusceptible to distortion in the presence of moisture, said cellulose organic

material being joined in permanent adhesive union with the paper base through the medium of a thin, transparent layer of non-moisture-susceptible thermoplastic resin and constituting a smooth, glossy, wear-resistant, protective covering for the window opening and providing a surface over which objects coming in contact with the outside of the carton at the opening may freely slide without catching or causing breaks or let-goes between the transparent material and the base.

2. A window carton comprising side and end walls and having a window opening in at least one of said walls, said carton comprising a one piece blank composed of a paper base with at least one window opening therein having laminated over the whole area of its outside surface including the window opening, and forming a perfect seal at the marginal edges of the opening a flexible, moisture-resisting, transparent sheet of cellulose acetate coated on at least one surface with a moisture-resistant layer and being inherently unsusceptible to distortion in the presence of moisture, said material being joined in permanent adhesive union with the paper base through the medium of a thin, transparent layer of non-moisture-susceptible thermoplastic resin and constituting a smooth, glossy, wear-resistant, protective covering for the window opening and

providing a surface over which objects coming in contact with the outside of the carton at the opening may freely slide without catching or causing breaks or let-goes between the transparent material and the base.

3. A window carton comprising side and end walls and having a window opening in at least one of said walls, said carton comprising a one piece blank composed of a paper base with at least one window opening therein having laminated over the whole area of both its inside and outside surfaces including the window opening, and in such manner as to form a perfect seal at the marginal edges of the opening at both sides of the base, a flexible, moisture-resistant, transparent sheet of cellulose acetate which is inherently unsusceptible to distortion in the presence of moisture, said material being joined in permanent adhesive union with the paper base through the medium of a thin, transparent layer of non-moisture-susceptible thermoplastic resin and constituting a smooth, glossy, wear-resistant, protective covering for the window opening and providing a surface over which objects coming in contact with the outside of the carton at the opening may freely slide without catching or causing breaks or let-goes between the transparent material and the base.

LEON L. McGRADY.