July 28, 1936. S. ROSEN 2,048,895

COMPOSITE COMMODITY WRAPPER AND METHOD OF CONSTRUCTING SAME

Filed June 4, 1934

Fig. 1.

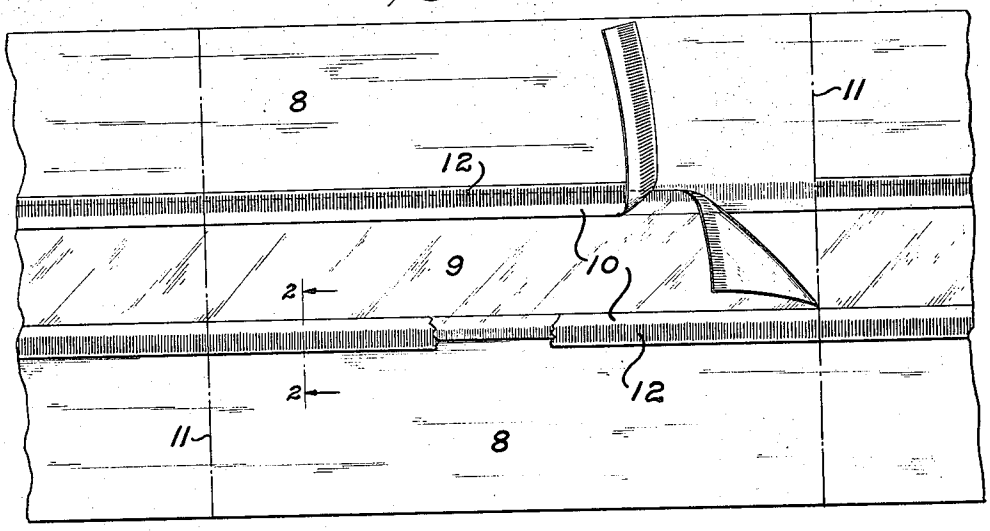

Fig. 2.

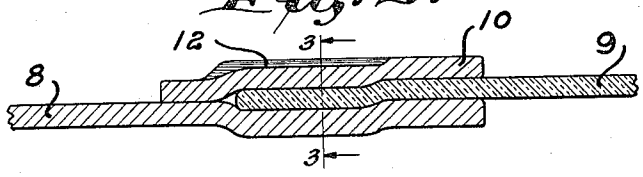

Fig. 3.

Fig. 5.

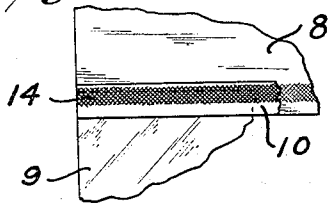

Fig. 6.

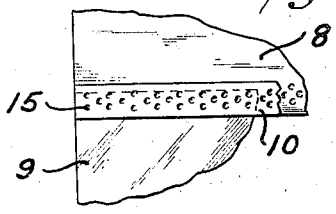

Fig. 4.

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COMPOSITE COMMODITY WRAPPER AND METHOD OF CONSTRUCTING SAME

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8 Claims. (Cl. 154—42)

The present invention relates generally to improvements in the art of manufacturing commodity wrappers, and especially composite wrappings of the so-called window type which will permit observance of the packed article thru one or more transparent sections of the wrapper.

An object of the invention is to provide an improved composite wrapper wherein the adjoining sections are effectively connected or attached to each other without the use of special adhesive.

It has for some time been customary to utilize the so-called "Revelation" wrapper for bread and many other commodities, this type of wrapping comprising parallel side strips of wax-coated, opaque or translucent paper, secured by adhesive to the opposite longitudinal edges of an intervening strip of transparent sheet material such as cellophane. In order to enable attachment of the smooth and relatively hard cellophane to the adjacent edge portions of the paper strips, these edge portions are maintained free from wax coatings so that the adhesive will more effectively unite the strips after the adhesive has been applied and the joint has been heated. The formation of the paper strips with wax-free areas along the edges thereof and the use of special adhesive have proven relatively costly, and in addition to the expense involved, the omission of wax from the joints permits the adhesive to more rapidly harden and crack when the wrappers are subjected to dry and hot climates.

It is therefore a more specific object of the present invention to provide an improved wrapper of the window type in which transparent areas are utilized in conjunction with opaque or translucent areas of paper, which will avoid the use of special adhesive and wherein the joints will not deteriorate due to exposure thereof to hot and dry atmospheric conditions.

In its broadest aspect, the present improvement contemplates the provision of a joint between the adjoining sections of a composite wrapper wherein a mechanical connection between the coacting strips or elements of the wrapper is obtained by distorting these elements so as to produce a substantial interlock between the materials themselves.

In order to improve the interlock and to make the joint moisture resistant, a wax coating applied to one of the composite elements may be extended between the coacting sheets, and the joint between the elements may be heated during distortion thereof when interlocking is being effected.

In some cases, it may even be desirable to provide an auxiliary protecting strip of waxed paper or the like at the edges of the window for the purpose of improving the joint; and the overlapping edges of these auxiliary strips may, by the application of heat, be substantially welded to the main wax-coated sheets of the wrapping.

The form of interlock utilized in connection with the present invention is subject to considerable diversification, but this mechanical connection is preferably produced by crimping each joint so as to cause protections on one of the sheets to engage recesses in the adjoining sheet and by heating the joint during the distorting or crimping operation.

While several specific embodiments of the invention will be shown and described herein, it is not contemplated to unnecessarily restrict the scope by such disclosure since the principles are obviously more generally applicable to other than window wrappers and to modified forms of mechanical union.

A clear conception of several types of the improved joint and of the method of producing wrappers in accordance with this invention may be had by referring to the drawing accompanying and forming a part of this specification, in which like reference characters designate the same or similar parts in the various views.

Fig. 1 is a partly disrupted plan view of a strip of composite wrapping material produced in accordance with the present invention, portions of the wrapper having been broken away or displaced in order to more clearly illustrate the details of construction of the wrapper;

Fig. 2 is a considerably enlarged section thru one of the joints of the wrapper of Fig. 1, the section having been taken along the line 2—2 of Fig. 1;

Fig. 3 is a likewise enlarged longitudinal section thru a fragment of one of the joints, the section having been taken along the line 3—3 of Fig. 2;

Fig. 4 is a somewhat enlarged transverse section thru a modified type of joint wherein the crimping extends longitudinally of the joint rather than transversely thereof, and wherein the auxiliary joint strip has been omitted;

Fig. 5 is a plan view of a fragment of a composite wrapper, showing a modified type of crimping or knurling utilized to attach the wrapper elements to each other at the joint; and

Fig. 6 is a similar view of still another form of distortion which may be used in producing a joint under the present invention.

Referring to Figs. 1 to 3 inclusive, the improved

window wrapper shown therein is of the composite type comprising a pair of spaced, parallel, side strips 8 formed of wax-coated, opaque, flexible paper; a strip 9 of transparent, flexible sheet material, such as "cellophane", interposed between and lapping over the adjacent side edges of the strips 8; and an auxiliary protective strip 10 of waxed paper or the like disposed over each extreme edge portion of the transparent strip 9 and coacting with the adjacent outer strip 8.

The entire areas preferably of both sides of the outer strips 8 are wax-coated, and these strips are, in fact, relatively short portions or sections of continuous ribbons cut along the lines 11 to form the individual wrappers. The surfaces of the intervening transparent strip 9 are devoid of wax coating but such strips may consist of moisture-proof "cellophane" susceptible of adhering to adjacent waxed areas when subjected to heat sufficient to melt the wax. While the auxiliary protective strips 10 may, in some cases, be entirely omitted, these strips, when used, are preferably wax-coated on both sides; and both the strips 10 and the intermediate window strip 9 are likewise severed into lengths along the lines 11 when producing the individual wrappers.

During assembly of the elements comprising the wrappers of Figs. 1, 2, and 3, the several strips 8, 9, 10 are fed from continuous rolls of stock in superimposed relationship relative to each other, as shown in Figs. 2 and 3, and are subsequently passed between sets of crimping rollers in a well-known manner. These crimping rollers are preferably heated, and as the superimposed strips 8, 9, 10 are subjected to heat and pressure by the rollers, they are provided with rows of small corrugations 12; and the wax coatings are simultaneously melted. After corrugating and heating has been effected, the joint may be cooled under pressure, so as to quickly and firmly set the wax. This corrugating or crimping operation causes the projections of each sheet 8, 9, 10 to coact with recesses in the adjacent sheet so as to provide a partial mechanical interlock, and as the molten wax cools after the strips pass beyond the heating zone, it practically cements the elements of each joint together. The joints thus provided will effectively resist disruption due to the application of ordinary stress and are sufficiently impregnated with wax to make them moisture resistant.

While the form of joint shown in Figs. 1, 2, and 3, when properly constructed, has been found serviceable, it may, in some cases, be desirable to omit the auxiliary protecting strips 10 as well as to utilize other types of interlocking formations. In Fig. 4 is shown an enlarged transverse section thru a modified form of joint between a wax-coated sheet or strip 8 and a transparent sheet or strip 9. In this modified joint the interlock is produced by rolling or otherwise forming cooperating ridges and grooves 13 extending longitudinally of the joint and parallel to each other. The wax surfacing at the joint is again heated during the operation of grooving and pressing this modified type of joint, so that the final connection is likewise formed without the use of a special adhesive and, in this case, without the aid of an outer protecting strip 10.

Figs. 5 and 6 illustrate modified form of joints utilizing the protective strips 10, altho these strips may also be omitted from these modified forms. In Fig. 5, the mechanical interlock is provided by cross-crimping or knurling the ridges and grooves 14 while the joint is subjected to heat. In Fig. 6, the interlock is effected by punching spaced detents 15 into the superimposed strips 8, 9, 10 at the joint while heated. Both of these modified types will resist disruption of the joints by the application of stresses, applied either longitudinally or transversely of the joint, and many other obvious types of interlocking formations may be utilized without departing from the scope of the present invention.

From the foregoing description it will be apparent that the invention provides an improved method of providing an effective joint between adjoining sections of a composite wrapper wherein said secured sections consist respectively of sheets of material each having different inherent characteristics and reactions to adhesive, heat and pressure. The described union between the sections is obtained without utilizing special adhesives such as heretofore employed and without the provision of a wax-free stripe on the wax coated section or sections. When one of the composite elements of the wrapper is wax-coated, the resultant joint is improved by the adhering wax which, besides more intimately uniting the elements, also makes the joint water-proof and less susceptible to disruption by hot and dry atmospheric conditions. The crimping or distortion of the coacting sheets at the joints provides a mechanical interlock or interengagement which, in itself, is sufficient to connect the sheets or strips if properly effected; and this interlock may be utilized in conjunction with molten wax or other adhesive if so desired. The machinery for producing the improved joints is obviously very simple, comprising merely one or more sets of heated crimping or distorting rolls which, by virture of their surface formation, will serve to feed the stock longitudinally; and the improved joints may be applied to any joints of a wrapper having a composite structure.

It should be understood that it is not desired to limit the invention to the exact details of construction and to the precise mode of forming joints herein shown and described, for various modifications within the scope of the claims may occur to persons skilled in the art.

It is claimed and desired to secure by Letters Patent:

1. The method of forming a joint between overlapping edges of adjacent sheets of paper one of which is wax-coated, which comprises, placing an auxiliary strip of wax-coated paper against the edge of the unwaxed sheet and in contact with the wax-coated sheet at the joint, and simultaneously heating and distorting the strip and the adjacent edges of the sheets to produce interengaging projections and recesses having layers of wax therebetween and to weld the wax-coated sheet and strip together.

2. A jointed sheet structure, comprising, a flexible sheet of wax-free material, a sheet of paper having a wax-coated area coacting with a definite area of one side of said material, and a strip of paper having a wax-coated surface coacting with the opposite side of said material at said area and also coacting with the adjacent portion of said wax-coated sheet, said sheets and strip being provided with interengaging projections and recesses at said area.

3. A jointed sheet structure, comprising, a flexible sheet of wax-free material, a sheet of paper having a wax-coated area coacting with a definite area of one side of said material, and a strip of paper having a wax-coated surface coacting

with the opposite side of said material at said area and also coacting directly with said wax-coated sheet, said sheets and strip being provided with a multiplicity of interengaging projections and recesses and intervening layers of wax thru-out substantially the entire area of coaction.

4. The method of forming a composite flexible flat wrapper sheet for commodities which consists in arranging alternate substantially coextensive sections of transparent and substantially non-transparent sheet material in side by side relation and overlapping along straight marginal edges only, the sections of one described character having a wax coating completely thereover and the other of said sections being substantially free of wax, applying pressure to crimp the said alternately arranged sections at the overlapped portions thereof to form a partial mechanical interlock therebetween and simultaneously applying heat at such overlapped and crimped portions to melt the wax at such portions, whereby on cooling the wax reenforces the crimped portions of the overlapped and interengaged portions of sheet material to insure against subsequent separation thereof in the composite wrapper sheet.

5. The method of forming a composite flexible flat wrapper sheet for commodities which consists in arranging alternate substantially longitudinally coextensive sections of transparent and substantially non-transparent sheet material in side by side relation and overlapping along straight marginal edges only, the sections of non-transparent material having a wax coating completely thereover and the section of transparent material being substantially free of wax, applying pressure to crimp the said alternately arranged sections at the overlapped portions thereof to form a partial mechanical interlock therebetween and simultaneously applying heat at such overlapped and crimped portions to melt the wax at such portions, whereby on cooling the wax reenforces the crimped portions of the overlapped and interengaged portions of sheet material to insure against subsequent separation thereof in the composite wrapper sheet.

6. The method of forming a composite flexible flat wrapper sheet for commodities which consists in arranging alternate substantially longitudinally coextensive sheet sections of paper and "cellophane" in side by side relation and overlapping along straight marginal edges only, the intermediate section of said composite sheet consisting of "cellophane" substantially free of wax and the alternate sections of paper having a wax coating completely thereover, applying pressure to crimp the said alternately arranged sections at the overlapped portions thereof to form a partial mechanical interlock therebetween and simultaneously applying heat at such overlapped and crimped portions to melt the wax at such portions, whereby on cooling the wax reenforces the crimped portions of the overlapped and interengaged portions of sheet material to insure against subsequent separation thereon in the composite wrapper sheet.

7. A composite flexible flat wrapper sheet for commodities, comprising alternate substantially coextensive sections of transparent and substantially non-transparent sheet material secured together in overlapped relation along adjacent marginal edges only, the sections of one described character having a wax coating completely thereover and the other of said sections being substantially free of wax, said alternately disposed sections having their overlapped portions distorted out of the plane thereof to constitute a mechanical interlock therebetween, and said wax coating adhering to and reenforcing the said interlocked marginal portions of said sections, whereby to insure resistance to strain and subsequent separation of the attached sections constituting said composite wrapper sheet, the wax coating between the overlapped portions of said sheet constituting the sole adhesive.

8. A composite flexible flat wrapper sheet for commodities, comprising alternate substantially coextensive sections of transparent and substantially non-transparent sheet material secured together in overlapped relation along adjacent straight marginal edges only, the outer of said sections consisting of paper having a wax coating completely thereover and the intermediate transparent section consisting of "cellophane" substantially free of wax, said alternately disposed sections being crimped at their overlapped portions out of the plane thereof to partially constitute a mechanical interlock therebetween, said wax coating on the outer sections adhering to and reenforcing the said crimped interlocked marginal portions of said overlapped sections, whereby to insure resistance to strain and subsequent separation of the attached sections constituting said composite wrapper sheet, the wax coating between the overlapped portions of said sheets constituting the sole adhesive.

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