METHOD FOR THE MANUFACTURE OF A CIGARETTE PACKAGE ENVELOPE AND PACKAGE ENVELOPE PRODUCED ACCORDING TO THIS METHOD

Filed April 8, 1955

INVENTOR.

INGEMAR OLSSON

BY

Young, Eng & Thompson

ATTYS.
For cigarette packages the following requirements should generally be fulfilled. Thus, the cigarette package should:

(1) Give sufficient support to the cigarettes,
(2) Be composed of a material having a permeability to water vapor of approximately 5 g/m²/24 h. at a difference of 45% between the relative moistures at the two sides of the material,
(3) Be able to retain the flavouring substances, ethereal oils and the like which are present in the tobacco,
(4) Be reclosable,
(5) In machine packaging be closed or sealed so tightly that a first class package material is made full use of,
(6) Decrease in volume with the content, i. e. it should be possible to contract the package according as the cigarettes are consumed,
(7) Have a neat appearance,
(8) Be cheap, which inter alia means that it shall be possible to produce the package by means of uncomplicated and reliable machines having considerable working capacity.

In a known cigarette package the material of the cigarette package envelope consists of three different layers, namely counted from the inside of the envelope (a) pasted aluminum foil, (b) printing paper, (c) cellophane.

In this package the desired properties as mentioned under points 2 and 3 above wholly fall on the aluminum foil layer, which thus gives the envelope a low permeability to water vapor, ethereal oils etc. The printing paper serves as a support for the printed label and serves mainly for decorative purposes. It has turned out that the appearance of the cigarette packages is important for the demand. The outer cellophane layer is intended to still decrease the moisture permeability of the package envelope, but this effect seems to be over-rated. However, the outer cellophane layer has to a certain degree an appearance-increasing effect and cooperates with the printing paper to give the property mentioned under point 7. However, the package is insufficient especially in view of the points 4, 5 and 8 above. Thus, a package material built up of several different layers is relatively expensive and, moreover, it is difficult to make a reclosable package construction in a simple manner. Further, the machine sealing of the cigarette package is not very good.

In another known cigarette package the envelope material consists of a double paper with a thin intermediate wax layer. Thus, the material is laminated. The label is printed on the paper which may then be varnished once or several times on one or both sides thereof. However, this package has not shown to be a satisfactory solution in view of points 4 and 3 above.

Different other types of cigarette packages have been and are used and a material has even been used consisting only of an aluminium foil, the label being printed directly on the metal support. However, this package was not appreciated by the consumers owing to lacking decorative properties, so that it was soon withdrawn from the market, though it showed to be more acceptable in most other respects than the decorative one.

The object of the present invention is to produce in a simplified manner a cigarette package which in view of all points 1–8 above can be considered as quite satisfactory.

In a method according to the invention for the manufacture of a cigarette package a so-called cohesive or self-binding binder is used, i. e. a binding agent which in the form of a layer on a support has a good binding effect against a surface having the same or a similar layer but no or only a slight binding effect against other surfaces, which binding effect may also be termed selective binding effect.

A method for the manufacture of a cigarette package envelope according to the invention is characterized in that a package material is used which is provided with a self-binding, so-called cohesive binder, which is applied to the entire package material or at least to such parts thereof which are brought into engagement with each other for constituting seams in the package envelope when the latter is sealed.

According to the invention the self-binding, cohesive binder may mainly consist of unvulcanized natural rubber latices and/or synthetic latices.

In a method according to the invention as stated above a package material is used, in which the cohesive binder is applied to the seam-forming parts of the package material, so that two such parts which are intended to overlap each other have such a self-binding layer on the sides thereof facing each other, to the effect that the self-binding layers touch each other and form a seam when the package is sealed.

In a method for producing a cigarette package envelope by shaping a thin packaging material, for instance paper, a material which is provided with a self-binding agent on the one or both sides, said side(s) being provided with such a binder on the whole surface or a part thereof, is used as the initial material before its shaping in order to form a package envelope thereof.

The self-binding agent may constitute the binder in all seams of the final package envelope, so that the serious drawback in the conventional packaging machines resulting in the necessity of applying a binding agent on the material in a special step in the operation of shaping or sealing the envelope is avoided.

By avoiding the application of a binding agent in the shaping and sealing operation it is also possible to increase considerably the working speed of the packaging machines which of course means that the costs of production will be reduced.

A simple way of using the invention consists in feeding a known machine for shaping a packaging material into a cigarette package envelope and closing same by so-called diamond or letter folding with a packaging material which is provided with a layer of a self-binding substance on the whole or a part of the surface which lies outwardly in the final package. In the shaping of the envelope and closing thereof by applying pressure in a known manner the desired sealing is then automatically obtained by the action of the self-binding agent. The undesired binding action of the parts of the self-binding agent which are not used for uniting and sealing purposes may then be eliminated in a suitable manner, for instance by bestrewing said parts of the layer with talc.

The general method for the manufacture of a cigarette package envelope according to the invention consists in using at least two separate parts of the same or different packaging material, one of which having a self-binding layer on the surface thereof facing outwardly in the final package, while the other part has a self-binding layer at the surface thereof facing inwardly in the final
3,859,671

These parts are shaped in such manner that they overlap each other in the final package for constituting seams in which the self-binding substance serves as a binder.

One of said parts may constitute a wall in the package envelope at the two end surfaces and the two narrow side surfaces of the latter while the other part constitutes a wall at the two broad side surfaces.

In connection with the above-mentioned simple way of using the invention it is also possible firstly to shape a package envelope of the one part having its self-binding layer facing outwardly in the final package according to the conventional diamond closing, whereas the other part is applied around the first part with its self-binding layer facing inwardly, so that the layers of the two parts bind to each other, whereby a laminate is obtained having no self-binding layer either at the inside of the package envelope or at its external surface thereof, which means maximum security against any undesired binding and very tight walls of the envelope.

The invention will hereinafter be more fully described with reference to the accompanying drawing in which Fig. 1 shows a cigarette package according to one embodiment of the invention, Fig. 2a shows a stage in the manufacture of a cigarette package according to another embodiment, Fig. 2b shows the final package corresponding to the embodiment shown in Fig. 2a, Fig. 3a shows a stage in the manufacture of a cigarette package according to a further embodiment and Fig. 3b shows a later stage in the manufacture than that shown in Fig. 3a, and Fig. 4 is a cross section taken on the line 4—4 of Fig. 1.

As pointed out above in the production of a cigarette package according to one embodiment of the invention a so-called cohesive or self-binding material is used as a binding agent, such as cohesive material being a binding agent which in the form of a layer applied to a support shows good bonding effect against a surface having the same or a similar layer but no or only a very weak bonding effect against other surfaces, which property may also be termed selective binding effect. However, it should be pointed out that such seams of the package envelope which in the conventional methods have been provided before the packaging materials is led to the shaping and sealing machine may of course likewise be provided in advance by means of another binding agent in the package according to the invention.

In Fig. 1 a package according to the invention is shown schematically in which the package envelope 20 has a self-binding material on its outer surface. The package is made of a packaging material one side of which is provided with such a self-binding layer before it is formed into a package envelope and sealed. Since the self-binding material is provided on the side of the packaging material facing outwardly in the final package it is possible to feed such a packaging material to a conventional packaging machine having no means for applying a binding agent to the package, in which machine the packaging material is shaped into an envelope and is sealed only by applying pressure and for instance according to the so-called diamond or letter closing as illustrated in Fig. 1. The self-binding layer does not bind against the means used for applying the necessary pressure for the closing or sealing operation. This operation may be carried out at both end surfaces 25a and 25b and the seal is quite tight. A seam in the vertical direction of the package may be obtained in a very simple manner by sealing together, by means of pressure, two inwardly directed end edges of the packaging material as shown at 22, which edges overlap each other and are provided with the binding agent. This is clearly shown in Fig. 1a. However, this seam may also be made in advance by means of another binding agent, if desired.

The final package corresponding to Fig. 1 has a self-binding material on its outer surface which would result in that cigarette packages abutting each other bind to each other. It is, however, possible to seal the package to eliminate the binding effect of the self-binding material which is not used for the sealing of the package, which may be effected for instance by drawing the layer with tale or like the like.

In Figs. 2a and 2b a further embodiment of the invention is shown which has connection with the embodiment according to Fig. 1. The package shown in Figs. 2a and 2b has a double envelope material and may be produced for instance by surrounding a package envelope according to Fig. 1, in which the self-binding material at the outer side of the envelope still has its binding properties, by a further envelope 25 suitable of the same material as the packaging material 21 according to Fig. 1. The envelope 25 is provided with a self-binding layer at the side thereof facing inwardly in the final package, as shown at 25a, while the outer surface 25b of the envelope 25 has no binding agent. The envelope 25 may extend beyond the end surfaces of the package with upright edges 26a and 26b which are then folded in a known manner so as to provide a diamond closing or the like as indicated by the arrows 27 in Fig. 2b, said figure showing schematically the final package.

The above-mentioned embodiment is on the one hand that a package is automatically obtained the outer surface of which being quite free from self-binding material and on the other hand that an envelope is obtained the wall of which consists of two layers 21 and 25 binding to each other substantially everywhere, so that a laminated wall material is obtained which is very tight and strong. In such a package cigarettes may be stored for a very long time.

In Fig. 3a a further example of the invention is shown in which two parts of the same or different packaging material are used in the manufacture of the package as is the case in Figs. 2a and 2b. One part 31 is tape-shaped as shown in Fig. 3a and is intended to form a wall at the two end surfaces and the two narrow side surfaces 35a, 35b and 37a, 37b respectively of the package. Narrow side surface 35a is formed by the two wings 41. The other part 33 of the envelope is intended to form a wall at the two broad side surfaces of the package. The part 31 which suitably may be made of a stiffer material than the part 33 is provided at its outer side with a self-binding layer 31a as illustrated by shadowing said surface, while the part 33 is provided with a self-binding layer 33a at the side thereof facing inwardly. The opposite sides 32a and 32b of the two parts have no self-binding layer.

The manufacture of the package envelope may be effected in such manner that the part 31 is first shaped by means of a core 45, whereafter the part 33 is wrapped around the part 31 and is sealed or closed as required by a folding operation in a suitable manner, for instance as indicated at 39 in Fig. 3a, the self-binding material on the two parts 31 and 33 serving as a binding agent.

As appears from the above in a machine for the shaping and sealing the package envelope according to the invention no supply of binding agent for the seams is necessary, since the self-binding layer on said parts of the packaging material automatically functions as a binding agent.

As mentioned above, the packaging material is fed to the packaging machine after it has been provided with a self-binding layer according to the invention. This layer may be provided in the factory, for instance a paper-mill, where the packaging material is produced, or it may be applied on the packaging material in a separate step before the latter is fed to the packaging machine. In the first case the material may be in the form of sheets or it may be wound into rolls which are transported to the cigarette-factory, where the material is un-
wound from the rolls and fed to the packaging machines. The layer may be provided in the one side of the packaging material over the whole surface thereof or only over a part of the surface. When the layer is applied in a special operation before the material is fed to the packaging machine the layer may, if desired, be applied to suitable places at both sides of the packaging material.

The packaging material suitably consists of a base material of paper but other base materials as cellophane, metal foil or the like may of course be used. The self-binding layer on the base material may suitably consist mainly of unvulcanized synthetic latices or natural rubber latices, or, if desired, a combination thereof.

The packages may be filled with cigarettes in a conventional manner which will therefore not be described here.

In a package according to the invention it is of course possible to provide means for facilitating the opening of the packages, for instance strips applied in a suitable manner known per se.

An advantage with the invention which has not been mentioned before is that the self-binding material makes it possible to reclose the cigarette package after the latter has once been opened, which is of great value.

The invention is not limited to the described examples which may be modified in different respects without deviating from the main inventive idea.

What I claim is:

The method of forming a parallelepipedical package comprising two pieces of wrapping material each having a cohesive coating on one entire side thereof, one of said pieces being a strip as wide as the thickness of the completed package and the other of said pieces being slightly wider than the broad side surface of the completed package, said method comprising forming said first named piece into the two end surfaces and two narrow side walls of said package with the cohesive coating facing outwardly, and forming the broad side surfaces of said package of said second sheet with the cohesive coating thereof facing inwardly by causing the cohesive surface of said second piece to contact and form a seal with the cohesive surface of said first sheet on at least one end surface and the two narrow side surfaces.

References Cited in the file of this patent

UNITED STATES PATENTS

<table>
<thead>
<tr>
<th>Patent</th>
<th>Inventor</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,164,153</td>
<td>Woods</td>
<td>Dec. 14, 1915</td>
</tr>
<tr>
<td>1,164,154</td>
<td>Woods</td>
<td>Dec. 14, 1915</td>
</tr>
<tr>
<td>1,936,136</td>
<td>Lindgren</td>
<td>Nov. 21, 1933</td>
</tr>
<tr>
<td>1,990,657</td>
<td>Daller</td>
<td>Feb. 12, 1935</td>
</tr>
<tr>
<td>2,152,232</td>
<td>Moore</td>
<td>Mar. 28, 1939</td>
</tr>
<tr>
<td>2,176,370</td>
<td>Wagner</td>
<td>Oct. 17, 1939</td>
</tr>
<tr>
<td>2,190,479</td>
<td>Moore</td>
<td>Feb. 13, 1940</td>
</tr>
<tr>
<td>2,529,060</td>
<td>Trillich</td>
<td>Nov. 7, 1950</td>
</tr>
</tbody>
</table>