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(54) Method for gumming reconstituted tobacco sheets

(57) The method consists of the following stages:
a) Immersion in water
b) Pressing between rollers, controlling their attractive stress so as to obtain a moisture content 20% or more
c) Depositing of adhesive in a quantity of 60 mg/m or less
d) Drying

In this way, the water contained in the sheets of reconstituted tobacco limits the amount of water that it may absorb during gumming, so that the linear weight of adhesive required for a satisfactory performance of the end product is reduced.

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Description

[0001] The present invention relates to a gumming procedure used in the manufacture of continuous wads of reconstituted tobacco sheets. Its field of application is that of articles for the smoker and in particular that of a set of reconstituted tobacco sheets gummed and bound to each other in such a way that they may be dispensed automatically by pulling on them gently. In this way, the smoker may use the reconstituted tobacco sheet either for rolling shredded-leaf tobacco or else for smoking the actual rolled tobacco sheet.

[0002] The gumming of smoking paper sheets is described in US patent 238966, while the gumming of reconstituted tobacco sheets is described in US patent 5762074. The latter document also discloses a form of presentation of reconstituted tobacco sheets in the format of a pad of sheets joined by one of their edges by means of a light adhesive.

[0003] BOLLORE document FR 2 772 237 takes up the idea of US patent 5762074, but proposing a presentation with the sheets collated instead of being joined to each other by one of their edges.

[0004] Lastly, the likewise BOLLORE document FR 2 785 504 acknowledges the scant adhesive properties of the gumming according to FR 2 772 237 due to the high capacity of adhesive absorption by the reconstituted tobacco sheet, which leaves too small an amount of adhesive free in order to be able to fulfil its function. The solution proposed consists of increasing the amount of adhesive used considerably, up to values above 70 mg/m. These high values give rise to a new problem, consisting of the fact that, although it fulfils its function, the band of adhesive becomes rigid and brittle, so that its drying has to be strictly controlled to ensure that it takes place slowly and without the moisture content dropping overly, which is achieved by spraying with water. Such a solution entails a higher cost, both on account of the adhesive used and the additional means needed during drying.

[0005] However, the applicant has confirmed that the problem raised may be resolved by other means that attack the root of the problem instead of setting out to mitigate the drawbacks of irrational solutions.

[0006] It is an object of the present invention to provide a method of gumming reconstituted tobacco sheets using a minimum of adhesive and achieving excellent sticking capacity while maintaining at the same time a high flexibility of the band of adhesive deposited.

[0007] Starting from the knowledge that the high absorption of adhesive by the sheets of reconstituted tobacco compared with sheets of smoking paper is due mainly to its greater porosity, the solution to the problem has been focused in the sense of limiting the absorption capacity of the reconstituted tobacco sheets. In the method of the invention this is achieved by saturating them with water and then forcing out part of this prior to the gumming operation. Saturation takes place as a result of the direct immersion in water of the reconstituted tobacco sheet, while the moisture retained is then reduced by the simple procedure of passing the reconstituted tobacco sheet between two rollers whose attractive stress is controlled precisely.

[0008] The invention is based on depositing a minimum quantity of adhesive and preventing its absorption by the sheet. It has been found that the presence of 20-25% of water at the time of gumming permits the depositing of layers of adhesive of a linear thickness of less than 60 mg/m, which surprisingly enough have an excellent sticking capacity.

[0009] The necessary subsequent adhesive drying operation is carried out in a conventional way without any need for spraying with water, as we start with very high initial values for the moisture content and the thickness of adhesive deposited is very low.

[0010] Thus, in the method of the invention the little adhesive used lies "outside" the sheet, so it is highly effective. The control of the attractive stress of the rollers makes it possible to adjust the quantity of water retained precisely and, therefore, the adhesive absorption capacity of the reconstituted tobacco sheet. The surplus water is evaporated during the adhesive drying operation until the moisture is reduced to the optimum values for the actual reconstituted tobacco sheet, which, as is common knowledge, should lie between 7-10%.

[0011] It is advantageous to operate not with individual sheets but with bulk rolls and then to cut the sheets after carrying out the gumming and drying operations. The final operation will consist of joining up a plurality of individual sheets, either by means of a light adhesive along one of their edges or else through mere collation, using processes that are common knowledge.

[0012] The procedure of the invention has great advantages over the methods of gumming used in the prior art, such as the following:

- Excellent sticking capability
- Low adhesive content. Reduced cost.
- Higher flexibility of the gummed sheet
- Usable with finer sheets
- Conventional low temperature drying
- Straightforward integration of the gumming, drying, cutting, etc operations through the replacement of spraying with water with immersion in water followed by pressing prior to gumming. The stages required for limiting the absorption capacity of the sheets take place prior to the conventional production system.

[0013] To supplement the foregoing description and in order to assist a clearer understanding of the features of the invention, we are now going to give a detailed description of a preferred embodiment.

[0014] The procedure used for the application of a band of adhesive along one of the edges, the drying of same and the collation of the reconstituted tobacco sheets make up a conventional production system and it is the same one that is used for the manufacture of

sheets of gummed paper for rolling cigarettes.

[0015] In our case the gum used for applying the band of adhesive to one of the margins of the reconstituted tobacco sheet is an adhesive for food products, the same as that used for paper for rolling cigarettes, and it is applied in a conventional way so that the amount of adhesive in a dry state is in the range between 45-60 mg/m.

[0016] The differences in the procedure used in respect of the prior art are as follows:

- The reconstituted tobacco sheet is partly saturated with moisture to values in the range of 20-25%, which is carried out prior to gumming by means of immersion in water followed by pressing between rollers, while controlling the attractive stress between them.
- The process speed is reduced to a maximum of 10 m/min.
- The drying temperature is lowered to values between 45-55°C so that a sheet of reconstituted tobacco is obtained with a moisture content that ranges from 10-15%.
- Drying can be done in a conventional mixed radiation-convection oven. With the parameters specified the oven has a length of 2-3 m.

[0017] The method of the invention, as it has just been described, is integrated in a system of continuous manufacturing of pads of gummed and interlinked sheets, of variable format in width and length, so that, starting from one or two pairs of input rolls of the necessary width for obtaining the required number of sheets, as many bands of adhesive as may be needed are applied to each of the rolls so as to proceed afterwards to the drying of the adhesive and terminate with the longitudinal cutting of the strips of paper, trimming, conveyance and storage of the selvedges. These strips obtained from the cutting will be folded in half and the sheets of gummed paper will be bound to each other to form a continuous pack which will be cut transversely to the desired length of the pads of gummed and bound sheets for stacking for their storage and subsequent boxing. We will not go into greater detail of these operations as they are completely familiar to an expert on the matter.

Claims

1. Method for gumming reconstituted tobacco sheets **characterised in that** it comprises the following stages:

    a) Immersion in water
    b) Pressing between rollers, controlling their attractive stress so as to obtain a moisture content 20% or more
    c) Depositing of adhesive in a quantity of 60 mg/m or less
    d) Drying

2. Method for gumming reconstituted tobacco sheets in accordance with claim 1, **characterised in that** after the pressing between rollers, the moisture content lies between 20-25%, the quantity of adhesive deposited being 45-60 mg/m.

3. Method for gumming reconstituted tobacco sheets in accordance with claim 1, **characterised in that** the drying is done in a mixed radiation-convection oven 2-3 m in length, at a temperature of 45-55°C and a humidity of 10-15%, with a process speed of 8-10 m/min.

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EUROPEAN SEARCH REPORT

Application Number
EP 06 38 0131

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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TECHNICAL FIELDS SEARCHED (IPC)

A24C
A24F
A24B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	31 July 2006	MARZANO MONTEROSSO

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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A : technological background
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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 06 38 0131

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