United States Patent Office 3,062,688 Patented Nov. 6, 1962

3,062,688

TOBACCO FOILS AND METHODS OF MAKING THE SAME

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No Drawing. Filed Aug. 14, 1961, Ser. No. 131,104
Claims priority, application Germany Aug. 18, 1960
5 Claims. (Cl. 131—17)

The present invention relates to a method of producing tobacco foils to be used particularly as cover leaves for holding together the tobacco of cigars, cigarillos, stogies, and the like, or as wrappers as a substitute for natural tobacco leaves.

Such tobacco foils have previously been made by mixing pulverized tobacco with cellulose derivatives which are soluble in organic solvents, for example, acetyl cellulose, in the presence of a solvent, such as acetone, ether, or alcohol, and by then spreading the doughy mass into foil shape. However, apart from the fact that even during the manufacture of such tobacco foils unsurmountable difficulties often occurred, they were not able to withstand the stresses of being handled by machinery or by hand and were also practically useless.

Furthermore, it has been proposed to bind the tobacco by applying water-soluble swelling agents of a cellulose ether base, such as alginates, pectins, and plant gums, whereby the watery swellings of these substances were mixed with finely pulverized tobacco and made into a paste, shaped into foils and dried. However, the thus produced foil-like layers are very sensitive to water and can be worked up only on special machines; furthermore their resistance to tearing is unsatisfactory.

To overcome these disadvantages it has already been proposed to use a viscous solution of highly methylated or completely methylated methyl cellulose in an organic solvent, such as methylene chloride and methyl alcohol, as binding agent for pulverized tobacco, and to shape the obtained doughy or pasty mass into foils and to dry them accordingly. Contrary to the watery mixtures, a mucilage prepared from these materials is capable of taking up a very high content of pulverized tobacco which has the desired favourable effect with respect to taste and properly glowing. Foils prepared from this mass have improved mechanical properties and may be easily worked both by machine and by hand. However, these foils consisting of ground tobacco and highly methylated methylcellulose as binding agent do not meet the high requirements of cover leaves for cigars and cigarillos with respect to their resistance to tearing and to saliva, and also because they have not sufficient suppleness. To overcome these disadvantages it was proposed to subject the thus obtained foils to a further treatment by coating the foils with a solution of water-insoluble cellulose derivatives. This, however, requires a further working step and larger amounts of solvent and also two drying steps, namely before and after coating the foils with water-insoluble cellulose derivatives.

It is an object of the present invention to produce a tobacco foil which overcomes the above mentioned disadvantages of the prior art and which is fully satisfactory in technical respects during manufacture, processing and use. The new tobacco foils have not only the required properties of a genuine tobacco leaf as far as taste and properly glowing is concerned but they combine also two contrary mechanical properties, namely being hard and brittle in the dry state and, when being wetted during processing, having the necessary suppleness, extensibility, high resistance to tearing and to water. The combination of these different groups of properties has always been a problem when making tobacco foils of pulverized

tobacco and a binding agent. The brittleness of the dry cover leaves is necessary for a satisfactory and clear cutting of the end of a cigar before smoking, while suppleness and water resistance of the moistened tobacco leaf is a necessity during manufacture.

Furthermore, experience has shown that the prior art methods have several other shortcomings. These methods require cumbersome machinery, e.g. for coating the tobacco leaf with water-insoluble cellulose derivatives, for two drying steps and for the recovery of solvents; they require furthermore a very precise control of temperature and humidity, both during storage of the obtained tobacco foil before they may be worked by machine or by hand and also during processing or wrapping the obtained leaves around the cigars.

It is, accordingly, a further object of the present invention to provide an improved method in which the second drying step, e.g. after coating with water-insoluble cellulose derivatives, is avoided and a careful control of humidity and temperature during processing is unnecessary; furthermore the former storing of the obtained tobacco foils in a chamber with saturated water vapour for taking up the necessary water content is also simplified.

These objects may be attained according to the invention by mixing finely pulverized tobacco with a viscous solution of cellulose derivatives, comprising a combination of water-soluble, highly methylated methyl cellulose and of a water-insoluble cellulose derivative and an organic solvent, shaping the pasty mixture into foils and drying the foils. The solvents which are especially suitable are mixtures of methylene chloride and methyl alcohol. The water-insoluble cellulose derivatives are preferably ethyl cellulose or acetyl cellulose. Usually the viscous solution of cellulose derivatives is prepared by dissolving a highly methylated but still water-soluble methyl cellulose in a solvent mixture consisting of methylene chloride and methyl alcohol and adding to this solution the water-insoluble cellulose derivatives, such as ethyl or acetyl cellulose, which are able to swell in the same solvent mixture.

By varying the proportions of water-soluble and water-insoluble cellulose derivatives the desired properties of the obtained tobacco foil may be controlled with respect to the difference or even contrary properties, namely resistance to tearing, to water and to saliva, suppleness etc. Hereby, the hydrophilic character of the water-soluble methyl cellulose is responsible for taking up a sufficient amount of water to influence the properties of suppleness and elasticity of the tobacco foil in the desired manner.

The following example may serve as an illustration of the required quantities of the various materials needed for producing a tobacco foil according to the invention:

Example I

The quantities of ingredients used (in parts by weight) are as follows:

	Parts
Methyl cellulose (highly methylated, water-soluble)	12.5
Ethyl cellulose, water-insoluble	12.5
Pulverized tobacco	75.0
	100.0
Organic solvent (methylene chloride/methyl alcohol, 8:2)	400.0

The pulverized leaf tobacco is thoroughly mixed with the cellulose derivatives being dissolved and swollen, respectively, in the solvent, to form a homogeneous, thickly, viscous mass. The thus obtained paste or dough is then

applied by suitable drawing means upon a smooth surface and passed through a hot-air channel. After the solvents, which may be recovered, have evaporated, the foil may be drawn off and cut ready for further use without subsequent conditioning or aging in a water vapour chamber.

Example II

Example I was repeated except that the following ingredients (in parts by weight) were used:

	Parts
Methyl cellulose, highly methylated but still water-soluble	10.0
Acetyl cellulose, water-insoluble	5.0
Diethylene glycol	10.0
Pulverized tobacco	75.0
Organic solvent (as in Example I)	500.0

With respect to prior methods, the method according to the invention has the advantages, that less solvent, e.g. 10% to 15% less, is used and further on, that the special air-conditioning and control of humidity and temperature during processing the tobacco products is unnecesary, which is especially a relief for the workers, who formerly had to work under extremely humid conditions. Finally, the storing of the tobacco foils or bobbins in humid air or in a vapour chamber for taking up the necessary water-content is simplified, because there is no danger of over-saturating the foils containing about 4% of water.

As used herein, the term "highly methylated cellulose" means cellulose having a degree of methylation of at least 1.6.

Although our invention has been illustrated and described with reference to the preferred embodiments thereof, we wish to have it understood that it is in no way limited to the details of such embodiments or to the specific examples described, but is capable of numerous modifications within the scope of the appended claims.

We claim:

1. A method of producing tobacco foils comprising the steps of mixing finely pulverized tobacco with a viscous solution of cellulose derivatives, said solution being a combination of water-soluble, highly methylated methyl cellulose and of a water-insoluble cellulose dreivative and an organic solvent comprising a mixture of methylene chloride and methyl alcohol, shaping the pasty mixture into foils, and drying the foils.

2. The method of producing tobacco foils comprising the steps of mixing 75 parts by weight of finely pulverized tobacco with a viscous solution of cellulose derivatives, comprising 12.5 parts by weight of highly methylated methyl cellulose, 12.5 parts by weight of ethyl cellulose and 400 parts by weight of an organic solvent, said organic solvent consisting of 320 parts by weight of methylene chloride and 80 parts by weight of methyl alcohol, shaping the pasty mixture into foils, and drying the foils.

3. A method of producing tobacco foils comprising the steps of mixing 75 parts by weight of finely pulverized tobacco with a viscous solution of cellulose derivatives, comprising 10 parts by weight of highly methylated methyl cellulose, 5 parts by weight of acetyl cellulose, 10 parts by weight of diethylene glycol and 500 parts by weight of an organic solvent comprising a mixture of methylene chloride and methyl alcohol, shaping the pasty mixture into foils, and drying the foils.

4. A tobacco foil comprising a thin dried sheet of a finely pulverized tobacco bonded with a mixture of water-soluble highly methylated methyl cellulose and at least one water-insoluble cellulose derivative, selected from the group consisting of ethyl cellulose and acetyl cellulose.

5. A method as defined in claim 1, in which said water-insoluble cellulose derivative is selected from the group consisting of ethyl cellulose and acetyl cellulose.

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