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TREATMENT OF TOBACCO

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The present invention relates to the treatment of tobacco and aims to provide certain improvements therein.

An object of the invention is the treatment of tobacco be it intended for cigar, cigarette or pipe smoking, so as to bring into the smoker's mouth a smoke free or containing less of the harmful irritants or toxic substances generally recognized as present in the smoke from the tobacco. Another object of the invention is to produce a more uniform and effective distribution of flavors, aromas or medicaments throughout a mass of tobacco.

The first of the foregoing objects I accomplish by effecting one or more of the following conditions in the burning mixture: (a) obtaining a substantially uniform distribution of the heat; (b) increasing the water content of the tobacco; (c) introducing a substance capable of adsorbing and/or absorbing liberated gases and tarry matter; and (d) introducing a strongly reactive substance or chemical.

Conditions (a), (b) and (c) of the preceding paragraph can be effected by the use of a hydrated aluminum silicate or clay having high specific absorptive properties for water, gases, tar and the like. One said substance particularly suited for this purpose and used by me in the treatment of tobacco is an alkaline hydrated aluminum silicate or mixture of silicates known as bentonite, and also variously known as Taylorite, Ardmorite and saponite. This substance also serves admirably well for accomplishing the second object of the invention outlined above and the condition (d) of the preceding paragraph.

In carrying out the present invention the bentonite or other equivalent substance is prepared in a finely divided state and blown into or over the tobacco, preferably at that stage in its preparation for consumption where a unit weight of tobacco gives the greatest surface area. In the making of cigarettes this would be at the stage when the tobacco is finely cut and ready to be put through the cigarette making machine. The amount of bentonite used per unit weight of tobacco is specifically determined by the effect desired, and to that extent is determined by the taste and aims of the manufacturer. I have found the most acceptable effects to result from a tobacco mixture containing approximately 2% of bentonite by weight. It is probable, however, that desirable effects can be obtained when using up to 5% bentonite by weight.

In the preparation of bentonite for addition to the tobacco mixture the bentonite is first finely

milled, washed or unwashed, previously baked to remove water, or not so baked, previously dyed with vegetable extracts to the color of tobacco, or not so dyed, and either blown into, on or over the tobacco in a powdered state or prepared in water solution in which it remains in colloidal suspension, and sprayed over the tobacco.

The manner in which bentonite thus disposed in tobacco effects changes in the chemistry of tobacco smoke that enters the smoker's mouth can be best illustrated by detailing what goes on in a cigarette treated with bentonite when said cigarette is being smoked. The bentonite being non-refractory, finely divided and uniformly dispersed through the tobacco mass, absorbs heat in the vicinity of the burning tobacco, thus providing equal distribution of the heat throughout the mass and insuring a more certain use of all the oxygen available from the air between the tobacco shreds. Immediately behind the burning area of the cigarette and throughout the length of the cigarette through which the smoke is coursing, the finely and uniformly distributed particles of bentonite absorb to the limit of their capacity (said capacity being dependent upon the amount and degree of distribution of the bentonite and the rate of flow of the smoke through the cigarette) water, thereby increasing the water content of the tobacco mixture soon to be consumed, thus insuring freshness to the tobacco and a low temperature combustion mixture, which is conducive to preserving from destruction the delicate aromas and bouquets of the tobacco. Bentonite having the property of absorbing and/or adsorbing about three or more times its own weight of water and about ten or more times its volume, to form a gel or salve-like paste therewith it will be appreciated that the removal of water vapor from the smoke stream will render difficult the maintenance in colloidal suspension to the degree present of the tarry substances in the smoke, hence the condensation of the tarry substances on the bentonite particles.

The influence of water saturation on the condensation of tarry substances from smoke can clearly be demonstrated in the following manner: Take two handkerchiefs, saturate one with water and keep the other dry. With each of these kerchiefs perform the following experiment: Draw smoke from a cigarette into the mouth and quickly expel it through the kerchief held closely to the lips. The dry kerchief takes on a strong brown stain from the smoke due to the deposition of tarry substances. The wet kerchief takes little or no stain due to the inability of the water-

saturated kerchief to absorb water from the smoke stream, which water in the smoke stream carries the tarry substances in suspension.

Bentonite also has a specific adsorptive power for tobacco tar. This is demonstrable by the fact that tobacco smoke tar collected in a condensing chamber and taken up by bentonite cannot be removed from the bentonite by alcohol in which tobacco tar is freely soluble. Gases too are adsorbed and/or absorbed and bound by bentonite. Illustrative of this is the ease and permanency with which bentonite will adsorb and/or absorb and bind iodine vapor.

Since the entire length of a cigarette is never burned, the unburned portion with its contained bentonite, acts purely as a filter, removing from the smoke stream through its adsorptive and/or absorptive properties, the gases and tarry substances produced in the combustion of the tobacco. These properties of bentonite may alone be used in the making of cigarettes and cigars by dispersing the bentonite only at the mouthpiece end of the cigarette or cigar.

Because of its power to absorb and bind water, bentonite may be used as a means of increasing the water content of tobacco mixtures, thus insuring freshness for the tobacco.

The adsorptive and/or absorptive properties of bentonite may also be effectively applied to the curing of tobacco leaves by powdering or spraying such leaves with bentonite at a time when the tobacco is being sweated, heated or toasted. The bentonite at such time will catch and bind such vapors as leave the tobacco.

Bentonite has been found to give colloidal dispersion to added substances. Hence, where it is desirable to add substances such as flavors, aromas, medicaments and the like to tobacco, bentonite may be employed as the carrying or dispersing medium. I have found bentonite efficacious to distribute traces of hydrochloric acid or sulphuric acid, or both, throughout tobacco mixtures for introducing these acids into the tobacco mixture to effect destruction in part or in whole of toxic bases formed in the burning of the tobacco. I have found effective when such addition is desired, the use of two cubic centimeters of concentrated hydrochloric acid or concentrated sulphuric acid in one kilogram of bentonite, the acidulated bentonite being thoroughly milled before using. Where it is desirable to effect distribution of a flavor in tobacco I have accomplished this by first dispersing menthol in bentonite by first dissolving approximately 100 grams of menthol in a minimum of 95% alcohol and the alcoholic solution of menthol then added to one kilogram of bentonite which was then thoroughly milled in a ball mill and then blown into tobacco. If desirable, the milled bentonite can be first suspended in water and then sprayed into the tobacco until the tobacco mixture contains approximately 2% of bentonite by weight. I have by a similar procedure effected distribution of perfume aromas and medicaments such as iodine, into tobacco mixtures.

From the foregoing it will be appreciated that I have detailed a novel method of treating tobacco whereby the noxious and harmful combustion products thereof are destroyed or substantially removed and the smoke from the tobacco rendered milder and less harmful to the human economy. I have also disclosed the manner and means by which flavors, aromas and medicaments may be introduced into tobacco.

While I have described only one substance,

namely, bentonite, for accomplishing the foregoing objects of the invention, it is to be understood that I do not wish to be limited to this one substance since the invention contemplates the use of any colloidal silicate having the property of forming with water a gel and through the use of which the objects of the present invention are realized, for example, any such substance which is effective in producing a permanent dispersion of a flavor, aroma, medicament or the like in tobacco, or which will wholly or in part accomplish the detoxication of tobacco smoke through the operation of the principles herein indicated will fall within the spirit of the invention.

What I claim is:

1. Treatment of tobacco, comprising adding to tobacco, an alkaline hydrated aluminum silicate which upon the smoking of the tobacco will be capable of adsorbing and/or absorbing gases and tarry compounds produced by the burning mixture.

2. Treatment of tobacco, comprising adding to tobacco, a colloidal substance containing a dispersion of an acid which upon the smoking of the tobacco will destroy the toxic bases produced by the burning mixture.

3. Treatment of tobacco, comprising adding to tobacco, a colloidal substance containing a dispersion of a flavor, an aroma, a medicament or the like.

4. Treatment of tobacco, comprising distributing throughout a tobacco mass, a substance in a finely divided state containing a permanent dispersion of a flavor, an aroma, a medicament or the like.

5. Treatment of tobacco, comprising distributing throughout a tobacco mass, a substance in a finely divided state containing a permanent dispersion of an adsorbed and/or absorbed flavor, aroma, medicament or the like.

6. Treatment of tobacco, comprising distributing throughout a tobacco mass, bentonite in a finely divided state containing a colloidal dispersion of a flavor, an aroma, a medicament or the like.

7. Treatment of tobacco, comprising distributing throughout a tobacco mass in a finely divided state, a colloidal clay which has a strong affinity for water and forms therewith a gel.

8. Treatment of tobacco, comprising distributing throughout a tobacco mass in a finely divided state, a mixture of earthy colloidal silicates which has a strong affinity for water and forms therewith a gel.

9. Treatment of tobacco, comprising distributing throughout a tobacco mass, bentonite in a finely divided state.

10. A tobacco mixture containing up to 5% of a colloidal silicate earth in a finely divided state which has a strong affinity for water and forms therewith a gel.

11. A tobacco mixture containing up to 5% of a colloidal clay in a finely divided state which has a strong affinity for water and forms therewith a gel.

12. A tobacco mixture containing approximately 2% of a colloidal silicate earth in a finely divided state which has a strong affinity for water and forms therewith a gel.

13. A tobacco mixture containing a colloidal silicate in a finely divided state, said colloidal silicate having a dispersion of a flavor, an aroma or a medicament therein.

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