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IMPREGNATED FILTER MEANS FOR TOBACCO ARTICLES

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2 Sheets-Sheet 1

FIG. 1.

1. COMBINE FLAVOR, SOLVENT CARRIER, STABILIZER & BLENDING AGENT

2. APPLY FLAVOR PREPARATION TO FILTER MATERIAL

3. FORM FLAVOR TREATED FILTER MATERIAL INTO A ROD

4. CUT ROD INTO CARTRIDGE SEGMENTS TO FORM MOUTHPIECES

5. ATTACH FLAVORED FILTER MOUTHPIECE TO SMOKING ARTICLE

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This invention relates to tobacco smoke filters and specifically to filters provided with flavoring and taste improving ingredients. More particularly, the invention concerns the combination of filter materials and flavor compositions, which affect the taste of smoke or hot medium (filtered smoke) passing through the filter.

Conventionally taste or flavor of tobacco smoke is derived from the natural taste of tobacco which may be treated with various flavor compositions. In the case of certain smoking articles, such as cigarettes, an additional component of the taste of tobacco smoke is contributed by burning paper wrapper. Therefore, the taste of tobacco smoke may be derived from burning tobacco, burning paper and burning flavor material. However, some of the flavor is destroyed by the burning itself.

When tobacco is burned in a smoking article, unburned tobacco, which may contain flavor material, acts as a smoke filter and may contribute to the taste of the smoke. Indeed, filters generally influence the taste of tobacco smoke by removing objectionable ingredients and some valuable ones as well.

Cartridges of tobacco, such as cigarettes themselves, have been proposed as disposable elements in filter devices.

It is well known that tobacco products tend to become stale and to lose both taste and moisture when they are stored for long periods. To prevent unfavorable conditions, this is especially true when the tobacco itself is provided with flavoring substances, although it may be overcome by treating the smoke of stale tobacco with a flavor agent. A considerable economic loss in state tobacco products will ensue, so that a method for either preventing or overcoming stale tobacco taste has great commercial value.

Both cigarette and pipe tobaccos are often flavored to influence the taste of the smoke and different types of tobacco are ordinarily blended together to produce a smoke taste, which results from the combination of several ingredients.

These flavor producing ingredients must be compatible with tobacco as well as with tobacco smoke in ordinary smoking articles, since they are stored in contact with the tobacco for prolonged periods of time and should not attack or discolor the tobacco or be harmful by contact with tobacco or burning tobacco.

In accordance with the invention the following ingredients are proposed for flavoring compositions to be included in filters: licorice, sugars, chocolate, menthol, honey, juniper, maple syrup, molasses, peppermint, rum, wine, coumarin, vanilla and other agents. Flavor extracts of Turkish, Virginia and Maryland tobacco may also be used.

It is therefore an object of this invention to provide means contributing to a very desirable tobacco smoke taste improving filter, which does not affect the smoking article wrapper or cigarette paper and remains active during prolonged storage of the smoking article, even under conditions which ordinarily have an adverse effect upon the taste of tobacco.

Another object of this invention is to provide means introducing desirable and selected flavors into tobacco smoke from a reservoir of flavor material in the filter part of a smoking article.

Still another object of this invention is to provide means enhancing the function of tobacco smoke filter by imparting to smoke and/or air, while passing through the filter plug, flavors which are greatly appreciated.

A further object of the invention is to provide means leading to novel tobacco smoke flavor compositions, which are added to the smoke after the tobacco has been burned.

Yet another object of this invention is to provide means contributing to a method of introducing flavors and taste into tobacco smoke by impregnating a filter mass with flavor material and then passing the smoke through the filter, whereby at least some of the flavor and taste improving components of the filter composition are carried to a smoker's mouth and will not be destroyed by the glowing or burning tobacco.

Still another object of this invention is to provide means facilitating the manufacture of smoking articles such as cigarettes with mouthpieces, and cigars in which flavor material is readily stored in a filter element thereof.

A still further object of this invention is to provide means resulting in interchangeable filter elements, whereby one or a combination of different flavors may be selectively introduced into the smoke stream of the smoking article.

Another object of this invention is to provide means introducing certain therapeutic substances into tobacco smoke without contacting the tobacco itself by such substances.

It is another object of the invention to provide means affording the preparation of a smoke filter improving composition which may be readily and uniformly distributed over or incorporated in filter elements (paper, spun fibers, etc.), avoids oxidation or reduction of taste improving ingredients, enhances the compatibility between flavor and tobacco, does not destroy the usefulness of the filter mass and will not make the latter brittle.

Another object of this invention is to provide a smoking article with a filter made primarily from non-tobacco materials, such as cellulose acetate in combination with one or more tobacco flavor ingredients which may be imparted to the smoke passing through the filter and may release a tobacco-like taste to the smoke.

Yet a very important object of the invention is to provide means capable of impregnating a filter or a smoking article, such as a cigarette, by a plasticizer carrying flavor, whereby the resultant mass assumes a physical change and whereby the mass is principally activated by saliva or moisture from the atmosphere as well as by the temperature of the tobacco smoke in contact therewith.

These and other objects and advantages of the present invention are described and pointed out in the accompanying drawing and in the following description of the invention.

FIGURE 1 of the drawing illustrates, by a flow diagram, various steps which may be used in preparing the flavored filters and their application according to a preferred form of the invention.

FIGURE 2 is a sectional fragmentary view of a filter composed in accordance with this invention.

The advantages of this invention may be realized by providing smoke filtration compositions with flowering or aromatic material which are imparted to a stream of smoke passing through the filter. The smoke is preferably derived principally from the burning of tobacco.

Some of the smoke components may also come from burning cigarette paper or various ingredients in a tobacco composition, including humectants, coloring and flavoring materials.

The smoke may also come from reconstituted or
homogenized tobacco which includes adhesive and filler material, as well as wrapper adhesives and pastes. Various vegetable fibers in the burning composition may also contribute to the smoke.

The invention further contemplates a filter and flavor composition which are not burned as in the case of a flavored tobacco filter, but burning about an improvement of filtration and a supply of flavoring matter to the filter. They do not themselves, therefore, constitute a composition suitable for a smoking article but rather for a filter, while some contains tobacco and like flavor materials.

The filter ingredients of this invention include non-smokable materials such as: cellulose derivatives in the form of fiber or tow including cellulose esters, such as acetate and propionate, mineral fiber, such as, asbestos, charcoal and textile fibers, both natural and synthetic.

The filter ingredients are preferably suitable for shaping into continuous rods from which sections or plugs may be cut to be applied as separate mouthpieces to smoking articles. The filter rods may be manipulated in conventional tobacco manufacturing machinery including means for encasing the filter in a paper wrapping sheath.

This allows the filter to be used as a mouthpiece in combination with a smoking article. The filters may also be used as cartridges in pipes and in mouthpiece holders for the insertion of cigarettes and cigars.

Although the filters of this invention are preferably intended for smoke derived from natural tobacco, they may also be applied to the treatment of smoke from other sources which goes into the mouth.

Artificial tobacco substitute materials, such as papaya, as well as smoke from reconstituted tobacco compositions may be improved by the use of the filter compositions of this invention.

In addition to the primary utility of influencing the taste of smoke, the method according to this invention, may be applied to dispensing of therapeutic materials, particularly, for treatment of respiratory complaints. For example, menthol or vasodilators, such as amphetamine, may be taken by smokers suffering from colds.

The invention is applicable to a spun filter which has been treated with flavor ingredients and thus continues to function as a filter, and both filtration power and pressure drop are not adversely influenced by the treatment with such flavor composition.

The flavor material or composition may be combined with spun cellulose fiber fibers, for example, and may be applied to the filter material at any temperature including sub-zero and elevated temperatures.

A particularly valuable feature of the invention provides means whereby sensitive and volatile flavors, which may be adversely affected by burning temperatures, or very hot smoke, can be introduced into the smoke after it has been cooled by passage to the filter.

For example, some flavors, if applied only to the tobacco to be burned, are destroyed or largely dissipate by volatilization in the combustion process. Some of the most delicate natural tobacco flavors are likewise destroyed.

This invention, therefore, offers a method of introducing or reintroducing pleasant smoke taste into the smoke stream at any selected concentration just before the smoke passes to the smoker’s mouth to be tasted. Natural tobacco flavors, including those attenuated by filtration will thus be fortified.

In the manufacture of smoking articles this invention allows the use of a single or reduced number of tobacco compositions which a variety of different tastes may be added merely by change in the attached filter. Even a smoker, particularly a pipe smoker, may select the particular taste to be given to smoke and may, for example, combine several filters in series if the pressure drop is controlled to produce a desired flavor blend.

The preferred flavor compositions of this invention may be made by combining a carrier, a flavor, a stabilizer, an intensifier (mono-glutamate) and a blending agent.

Each component may comprise one or more ingredients selected from the following groups, the stabilizer and/or blending agent may be omitted in some instances.

The carrier which may also act as a plasticizer, humectant or solvent may be selected from: alcohols and particularly ethyl alcohol, triacetin, glycerol triacetate, glycols, such as diethylene glycol, ketones such as acetone, esters such as acetates, ethyl acetate and phthalate esters, such as butyl phthalate, acetone and methanol.

In a preferred embodiment of the invention, a flavoring substance such as menthol, tobacco extract or coumarin is completely dissolved in a solvent such as triacetin or glycerol triacetate and a cellulose ester filter material is then impregnated with the solution, whereby the filter material reacts with the solvent and the flavoring substance to form therewith an integral homogeneous filter mass.

The flavor or taste improving substance, which may be any of the usual tastes listed hereinbefore, may preferably be obtained from aromatic compounds, such as combination of oils, such as menthol, peppermint or eucalyptus although solid material may be used which is adequately dispersed in the liquid composition. Coumarins are particularly useful and several individual flavors are to be advantageously employed singly or combined in predetermined proportions. Coumarin is to be used in suitable amount. These flavoring substances may be released by the warm tobacco gases and/or by a moisturized atmosphere or like conditions emanating from a smoker’s mouth.

Stabilizers or fixatives, such as resinsoids derived from plant resins, are very useful in preserving the flavor during storage of smoking articles incorporating these compositions. As such resinsoids, according to the invention, olibanum, which is soluble in alcohol, ether, but not in water and has an agreeably balsamic and faintly lemon-like odor, as well as galbanum and karya gum are proposed.

A blending agent may also be combined to make a smoother composition and preferably a vegetable oil such as olive oil may be used.

The foregoing composition may be combined with the filter elements in the form of a single mass and various methods of application or impregnation are suitable. Preferably the flavor composition is applied to the filter elements, such as cellulose acetate fibers, by dipping, spraying, mixing, or by injecting same into the fiber mass. This is best done prior to encasing the fibers in a wrapper.

The invention is further illustrated by the following specific examples:

**Example I**

Five grams of menthol (which may be either synthetic or natural) were dissolved in acetone. The mixture was heated to 70° C. One gram of coumarin was added to the mixture. The useful range of addition of this last aromatic ingredient could vary from one quarter to two grams. This composition was used to steep cellulose acetate fiber which formed a filter rod in the mouthpiece of a cigarette.

**Example II**

Five cubic centimeters of rum were mixed into one hundred cubic centimeters of ethyl alcohol in a vertical blender at room temperature together with ginger. Three to ten cubic centimeters of rum appeared to be suitable.

To avoid precipitation problems this composition was immediately infused into a charcoal filter. The filter was used as a cartridge in a pipe.

**Example III**

Fifty cubic centimeters of ethyl alcohol, combined with
an equal quantity of butyl phthalate, were heated with five cubic centimeters of peppermint oil to 100° C. and thereafter allowed to cool at room temperature overnight. The liquid was filtered and the filtrate was sprayed onto a glass wool filter which was used in the mouthpiece of a cigar.

Example IV

Ten grams of aromatic oil (peppermint, eucalyptus, menthol) are mixed with one gram of one or more resinoids (olibanum, frankincense and karaya, galbanum) and then heated to 65° C., the mixing being carried out in a blender and a clear, transparent liquid is obtained which is admixed in 89 grams of a solvent (ethyl acetate) for about 2 minutes, till it has cooled off to room temperature. The resultant substance is then added as manufacturing step to spun and like filter mass.

Referring then to FIGURE 2, reference numeral 1 indicates the outer envelope or retaining sleeve of a cigarette filter which accommodates the filter mass 2. The filter mass consists of an integral homogeneous mass of cellulose ester filter material, a flavoring substance and a solvent such as triacetin or glycerol triacetate.

There have thus been described novel filter compositions, articles and smoking articles as well as certain steps of making and using the same.

Various changes and modifications may be made without departing from the spirit and scope of the present invention and it is intended that such obvious changes and modifications be embraced by the annexed claims.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent, is:

1. A cylindrical tobacco smoke filter essentially consisting of an integral homogeneous mass of cellulose ester filter material, a flavoring substance and a solvent selected from the group consisting of triacetin and glycerol triacetate, said filter being made by first completely dissolving the flavoring substance in said solvent selected from the group consisting of triacetin and glycerol triacetate and then utilizing the solution thus obtained to impregnate said filter material consisting of said cellulose ester, whereby said cellulose ester filter material reacts with said solvent and said flavoring substance so as to form therewith an integral homogeneous filter mass.

2. A cylindrical tobacco smoke filter as claimed in claim 1, wherein said flavoring substance is selected from the group consisting of menthol, tobacco extract and coumarin.

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