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METHODS OF TREATING SMOKING TOBACCO

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FIG. 1

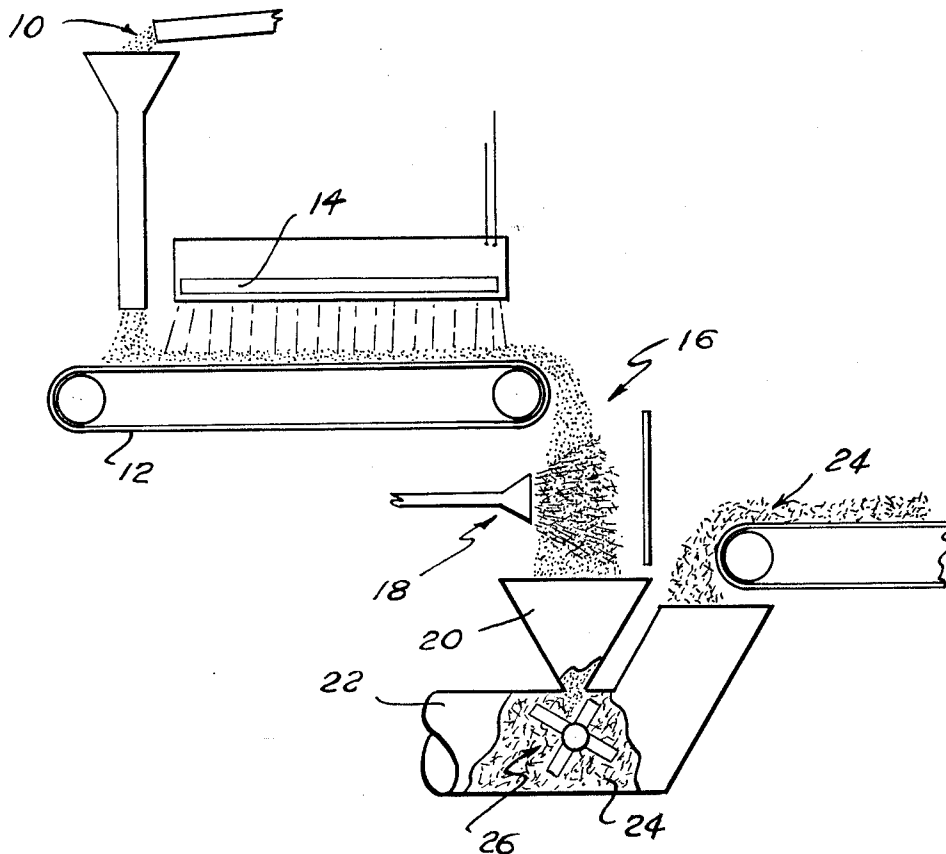
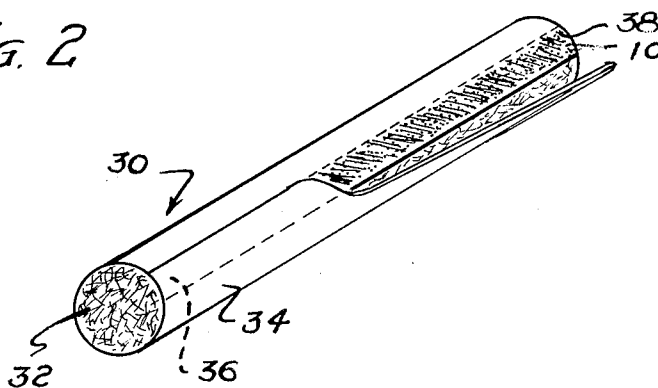


FIG. 2



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METHODS OF TREATING SMOKING TOBACCO

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5 Claims. (Cl. 131-9)

This application is a continuation-in-part of my co-pending application Serial No. 710, filed January 6, 1960, and now abandoned.

The present invention relates to a novel and improved cigarette and method phases in the manufacture thereof, and more particularly and specifically to a cigarette containing ingredients which reduce harmful physiological effects resulting from inhalation of tobacco smoke.

It has been discovered in recent years that certain substances present in tobacco smoke, such as tars and resins, act to substantially retard the filtration action of the cilia present in a human respiratory system when tobacco smoke is inhaled into the system. Such reduction in cilia filtration efficiency permits passage of a greater percentage of tars, resins and other irritants through the system into the human lungs.

I have discovered that the inhalation of negatively charged ions will greatly increase the filtering action and efficiency of the cilia in the human respiratory system. I have also discovered that the rate of filtration action increase in the cilia resulting from breathing negatively charged ions approximates the rate of decrease normal during inhalation of tobacco smoke.

It is therefore a general object of my invention to incorporate the benefits of negative ionization in smoking tobacco and tobacco articles to counteract or counter-balance the reduction in cilia filtration efficiency which normally occurs with inhalation of tobacco smoke.

It is a principal object of my invention to provide, as an improved article of manufacture, a cigarette embodying negative ion charges therein which are releasable with the smoke of the tobacco when burned.

It is an important object of my invention to incorporate in a cigarette construction electret particles supporting and retaining negative ion charges.

It is an object of my invention to treat tobacco in such a manner and by such method steps as will embed in or impregnate tobacco with negative ion charges which will find their way into the human respiratory system with the smoke of the tobacco when it is inhaled.

It is another object of my invention to treat smoking tobacco by such steps and methods as will deposit negatively charged ions in the tobacco in such a manner that the tobacco will retain the negative charges until such time as the tobacco is smoked.

A further object of this invention lies in a method or methods of treating tobacco while it is being handled and treated preparatory to its incorporation into cigarettes, cigars, and packaged smoking tobacco.

Still further objects and advantages of this invention will become more readily apparent to those skilled in the art when the following description is read in the light of the foregoing objects and advantages.

Referring now to the accompanying drawings:

FIG. 1 is a diagrammatic view of apparatus for practice of one embodiment of the present invention;

FIG. 2 is a pictorial illustration of a cigarette made in accordance with another embodiment of the invention.

As an improved article of manufacture I contemplate a cigarette having incorporated structurally therein negative ion charges which are released with the smoke of the cigarette when it is burned. Such negative ion charges may be secured in the paper of the cigarette, or may be deposited and retained in the tobacco within the cigarette.

By way of example, I have discovered that cigarettes

containing negatively charged ions may be produced by inducing a concentrated charge of negatively charged ions, using a metallic oxide, such as iron rust dust, as an electret, into the usual adhesive utilized to seal the overlapped edges of cigarette paper. The cigarette adhesive will encapsulate the electrets deposited therein inhibiting the escape of the negative charge until it is released during the burning of the tobacco and the paper.

A method of accomplishing the encapsulation of negative ion charges in the paper adhesive of a cigarette would include the steps of subjecting to a negative ion generator a stream of electret particles, such as iron rust dust, and immediately thereafter collecting said particles in dielectric apparatus and directing them into the adhesive immediately before or at the time of its application to the cigarette paper in the cigarette forming process.

In FIG. 1 of the accompanying drawings there is shown one form of apparatus capable of practicing one of the concepts embodied in my invention. In this embodiment electrets 10, such as iron rust dust, are fed in controlled amounts to the feed end of an endless conveyor belt 12 of non-conductive material. The belt may be of a shaker type to continuously bounce the electrets on the surface of the belt as they are moved with the belt beneath a series of ultra-violet lamps, 14, which act to impress a negative ion charge on each electret. It is contemplated that other forms or ion generators, such as corona discharge elements, may be used in place of ultra-violet lamps.

The discharge end of the endless belt spills the charged electrets as at 16 through the field of an atomizer 18 into a hopper 20 associated with a tobacco mixing and delivery tube 22. Shredded tobacco 24 is fed into the tube 22 and is mixed as at 26 with the charged electrets prior to delivery of the tobacco through the tube to a typical cigarette making machine.

In the field of the atomizer 18 the charged electrets are subjected to a fine, forced mist of a non-conductive gelatinous material which encapsulates each electret locking its negative charge against dissipation until the encapsulating substance is melted during smoking of the cigarette.

Apparatus comparable to that shown in FIG. 1 would be used to deposit charged electrets in the glue used in binding the cigarette paper around a stack or column of tobacco incident to the formation of cigarettes. For example, the elimination of the atomizer 18 and the conversion of the tobacco tube 22 to a glue delivery tube would result in the charged electrets being distributed in the glue and encapsulated thereby. Thereafter the electrets carried by the glue would be incorporated in the cigarette during manufacture in the normal and typical overlapping and gluing of the cigarette paper about the column of tobacco.

In FIG. 2 of the drawings there is shown a cigarette 30 including a column of tobacco 32 wrapped in a typical cigarette paper 34 which is overlapped as at 36 and glued as at 38 in the overlapped area. The glue 38 contains the charged electrets 10 encapsulated therein which are available to be released when the cigarette and its component paper are burned.

It is further contemplated that the foregoing cigarette structure containing negative ion charges could be attained by the steps of subjecting a stream of electret particles, such as iron rust dust, to the field of a negative ion generator while simultaneously directing into said stream of electret particles an atomized mist of a gelatinous material, such as peach resin. Thereafter, the gelatinously encapsulated electret particles would be collected and directed into the adhesive, either prior to or at the time of

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its application to the cigarette paper as it is used in the normal cigarette forming process.

By way of further example, I have discovered that it is possible and practical to introduce negative ion charges into smoking tobacco and to retain the charges therein until released by burning of the tobacco. Such deposit and retention of charges in tobacco may be accomplished by encapsulating negatively charged electrets in a dielectric gelatinous material which will decompose during burning of the tobacco to release the charges.

A method of accomplishing the deposit of negative ion charges in smoking tobacco would include the steps of directing a stratified stream of electret particles, such as iron rust dust, into the charging field of a negative ion generator while simultaneously directing an atomized mist of a gelatinous substance, such as peach resin, into the stream of electrets and thereafter conducting and directing the gelatinously encapsulated electrets into shredded tobacco while the tobacco was being constantly mixed and stirred. Thereafter, the tobacco containing the encapsulated charges would be used in the normal cigarette manufacturing process.

It is recognized that it is essential to good smoking qualities that tobacco have a minimum moisture content as a packaged product and at the time it is used as a smoking article. Thus, the tobacco is subjected to moisturizing methods such as vapor baths or mists and it is processed in areas of controlled humidity and the finished smoking products are packaged in airtight, moisture-retaining packages.

My discovery is essentially simple in that it contemplates, during the processing and treating of smoking tobacco, subjecting the tobacco to a moisture vapor bath, and subjecting the vapor bath or mist to the effects of a negative ion charger in advance of the moisture or vapor contact with the tobacco. Thus, the moisture particles in the bath or mist are induced with negative ion charges which are carried over into the tobacco where the moisture is retained during processing stages and where it is further retained by the moistureproof packaging of the finished product.

It has been further determined that a certain degree of negative ion charge may be deposited directly in tobacco without utilization of the intervening vapor mist vehicle provided the tobacco has a relatively high moisture content. Hence a modified method of tobacco treatment falling within the concepts of my invention would embody the subjecting of smoking tobacco to a moisture vapor bath or mist, and then passing the tobacco through the effective field of a negative ion charger whereby the moisture particles present in the tobacco, or the moisturized tobacco particles themselves, will adopt the negative ion charges to be retained in the tobacco through processing and packaging as previously described.

I have discovered that a cigarette may be produced in accordance with the foregoing disclosures utilizing any one of a variety of metallic oxides as the electret component, and I have discovered that various forms of dielectric gelatinous substances, such as fruit resins, honey, and

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carbohydrate syrups, may be used with satisfactory results for encapsulating negatively charged particles.

The particular equipment utilized for the purpose of charging tobacco, vapor bath, or electret particles is not critical since negative ion generating apparatus is commercially available which will accomplish the necessary charge creation.

Having thus described and explained the step by step methods of practicing my discovery and having fully stated the objects and advantages obtained by the practice of my inventive method, what I desire to claim is:

1. A method of treating smoking tobacco including the steps of directing a stream of electret particles through the field of a negative ion generator, simultaneously directing an atomized mist of a dielectric gelatinous material into the stream of electret particles, collecting gelatinously encapsulated electret particles, and depositing and interspersing the said particles in shredded tobacco prior to cigarette production therefrom.

2. A method of producing an improved cigarette article including the steps of subjecting electret particles to the field of a negative ion charger, collecting said electrets and dispersing them in adhesive utilized for securing cigarette paper about a tobacco column in the manufacture of cigarettes.

3. An improved cigarette comprising, a packed column of smoking tobacco having embedded therein gelatinously encapsulated negatively charged electrets, and a paper tube encircling said packed column of tobacco.

4. An improved cigarette article comprising a column of packed smoking tobacco, a paper tube encircling said column and having overlapped longitudinal edges secured by an adhesive material, and negatively charged electret particles embedded in and encapsulated by said adhesive material.

5. An improved cigarette comprising, a packed column of smoking tobacco, a paper tube encircling and retaining said packed column of tobacco, and gelatinously encapsulated negatively charged electrets formed integrally as a component of said cigarette article.

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