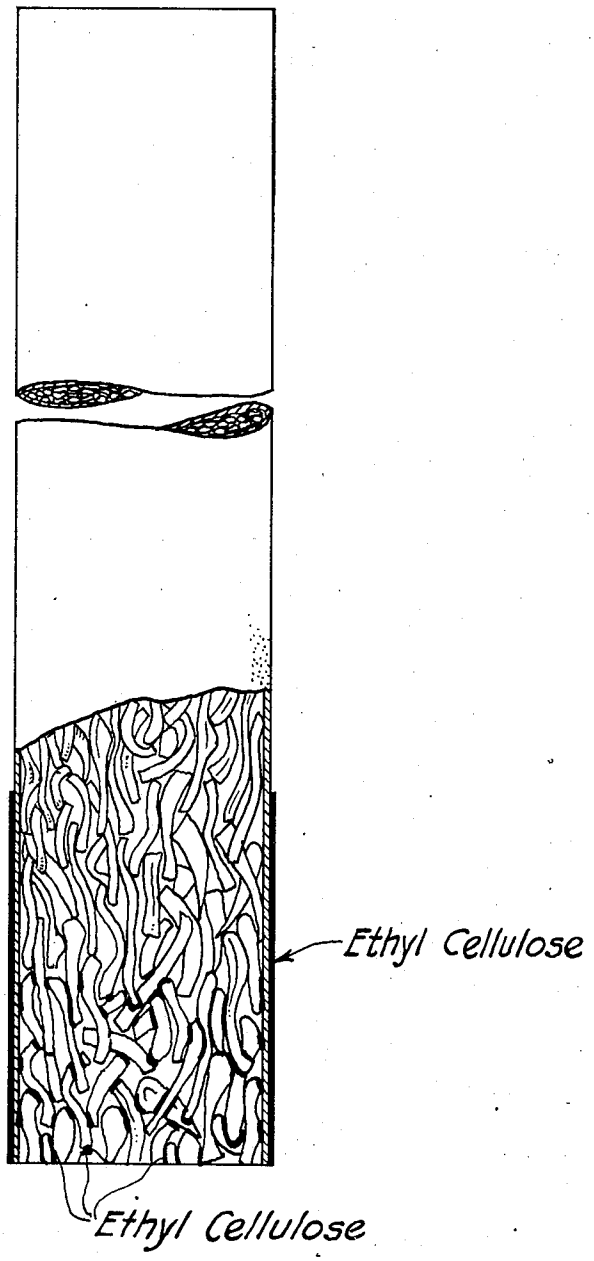
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CIGARETTE

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CIGARETTE

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1 Claim. (Cl. 131—12)

The conventional factory rolled cigarette generally embodies a blend of foreign and domestic tobaccos mechanically rolled into cylindrical form within a paper tube or envelope having open ends. During the rolling operation, the tobacco is compacted sufficiently to hold it within the tube ends and at the same time provide for the draft necessary for smoking.

Cigarettes of this character are open to certain objections. For example, it is not uncommon for such cigarettes to stick to the lips of the smoker so tightly, particularly when first brought into contact therewith, that, if attempt is made to remove the cigarette, the skin of the lip will be removed with it. Moreover, persons who smoke cigarettes with wet lips find that the paper envelope softens to such extent as to free appreciable parts of the tobacco which fall into the mouth and the wetting of the envelope at the tip causes saliva to work by capillary action along the cigarette an appreciable distance. These difficulties have been somewhat remedied by the employment of cork or straw tips, but even when such tips are employed, and whether the cigarette is smoked with dry or wet lips, it is found that shreds of tobacco fall into the mouth and constitute an annoyance and discomfort to the smoker. The result is that although upwardly of one hundred billion of cigarettes are annually consumed in the United States alone, and although the disadvantages referred to have long been recognized by cigarette smokers, no adequate solution of the problem has been thus far advanced.

The foregoing difficulties may be solved through impregnation of the mouth end of the cigarette with a saliva-proof adhesive to waterproof the mouth end of the paper envelope and adhesively secure the tobacco shreds at the corresponding end of the cigarette to one another and to the envelope. This method of procedure will impart a definite stiffness to the body of the cigarette at the mouth end thereof, waterproof the cigarette at this end and effectually preclude the grains or shreds of tobacco from inadvertent release from the remainder of the cigarette during ordinary smoking of the latter. Exhaustive research, however, has demonstrated that the composition used in this connection must conform to very exacting requirements. It must be such that it will not chemically react with saliva, nor can it be affected by the products of burning incident to the smoking of tobacco. It must be absolutely harmless and it must be tasteless and non-toxic. Furthermore, while the mouth end would, in practice, be properly designated, it must be such that, in the event the wrong end of the cigarette is lighted by mistake, or in the event the cigarette is permitted to burn down too close to the lips, no harmful effects or undesirable taste will result.

Manufacturers of cigarettes have gone to great expense in developing and standardizing and rigidly maintaining the smoking characteristics of any given brand. This of course involves not only the tobacco blend, but the particular paper used in conjunction therewith. Consequently it is important that the taste, odor and aroma of the smoke remain absolutely unchanged. To this end no change should be made in the burnable portion of the cigarette and any treatment which is to be applied thereto should be confined strictly to the mouth end thereof.

I have found that a composition comprising ethyl cellulose and ethyl alcohol conforms to all of these requirements and is also such that it may be applied to the paper wrapper prior to, during or after fabrication of the cigarette, and that it may be applied to the tobacco filler after the formation of the cigarette, without undesirably discoloring the cigarette or causing cigarettes, which may be adjacent one another during the treatment, to adnere to one another.

The present invention, therefore, is primarily directed to a cigarette treated in the manner hereinafter described with the composition stated.

Features of the invention, other than those adverted to, will be apparent from the hereinafter detailed description, when read in conjunction with the accompanying claim.

In the accompanying drawing, I have illustrated in a more or less diagrammatic manner the cigarette according to one practical embodiment of the present invention, but the structure therein shown is to be understood as illustrative, only, and not as defining this invention.

In practically carrying out the invention, a solution of ethyl cellulose in anhydrous ethyl alcohol will give the best results and if the solution is to be applied by spraying, as may conveniently be the case, a concentration of 5% to 7% of ethyl cellulose in the solvent will give about the right consistency. The anhydrous alcohol used may be pure or modified with small amounts of other non-toxic solvents. Either a high or low viscosity ethyl cellulose may be used depending upon the method of application and the character of the finished product desired. If it should be desired

to impregnate the end of the cigarettes by applying a drop or two of the composition directly to the tobacco, it is more desirable to use a high viscosity ethyl cellulose, so as not to extend the penetration of the composition too rapidly into the paper as this would cause wrinkling or discoloration. On the other hand, if it is desired to apply the composition by spraying, a relatively low viscosity cellulose composition may be employed, as the application of the composition may, by this method, be more accurately controlled. The paper wrapper may be treated prior to its application with the tobacco in which case it may be dipped in the solution or the solution may be applied by a sprayer or by suitable application rolls.

If the composition is to be applied to the paper after the cigarette is formed, I preferably employ a cellulose of relatively high viscosity, so that the composition will form a film on the surface without appreciable penetration of the paper for if a low viscosity cellulose is employed, the cellulose might penetrate the paper and dissolve out some of the coloring matter from the tobacco with the resulting discoloration of the paper.

For the reasons given, the use of the high or low viscosity cellulose in solution will be chosen in accordance with the particular method of manufacture carried out and the invention is not therefore to be understood as limited in this respect.

A solution of ethyl cellulose in absolute or anhydrous ethyl alcohol, as specified, has been found to give highly satisfactory results and to possess all of the exacting requirements incident to use in this connection. It causes the deposit of a moisture-resistant, flexible, solid cellulose which is odorless, tasteless and water-white in color. It is non-toxic, moisture resistant and unaffected by the products of burning incident to the smoking of tobacco. It will not chemically react on saliva and if the wrong end of the cigarette is lighted by mistake or the cigarette is permitted to burn too close to the lips, no harmful effects or undesirable taste will result. Furthermore, in the event that for any reason the slightest trace of the solvent remains, through incomplete evporation, combustion thereof will leave no toxic compounds and the presence of the alcohol will accentuate rather than detrimentally affect the aroma of the cigarette.

If a relatively high viscosity ethyl cellulose is employed for the treatment of the mouth end of the cigarette, a thin film on the surface of the paper results which tends to give a luster and a smoothness which is pleasing to the lips. By the use of a lower viscosity, however, there is an appreciable penetration or absorption by the paper so that the presence of the composition in a finished cigarette is not visually apparent. Waterwhite treatment will ordinarily be found most desirable, although, if desired, the solution may be appropriately colored or tinted if this is preferred.

The cigarette of this invention may be made in any approved manner by dipping or spraying or both, as occasion may require. The paper may be treated before being rolled to enclose the tobacco and the tobacco at the mouth end of the cigarette thereafter impregnated with the composition stated, or the paper and tobacco may be treated after the cigarette is rolled, or the paper may be treated externally either before or after rolling, and the tobacco left untreated or the tobacco only may be treated after the cigarette is rolled leaving the exterior of the paper untreated. Particular methods of manufacture will depend upon the product desired. In any event, the solution or composition referred to is highly volatile, evaporates very rapidly leaving a fine film or residue of solids which cause the shreds of tobacco to be individually strengthened or stiffened, while the grains are collectively bonded to one another and preferably to the paper wrapper to form, in effect, a relatively rigid plug of tobacco at the tip end of the cigarette.

In practice I preferably treat the paper for a distance of one inch or less at the tip end as will allow for ample lip room, while the tobacco shreds or grains at the corresponding end of the cigarette may be treated for a much less distance. Approximately one-quarter inch has been found to give satisfactory results although a lesser distance will suffice.

In the accompanying drawing, I have shown, as clearly as possible, within the limits of a drawing, the impregnation of the cigarette and the coating of the exterior of the paper. In actual practice, the film or pellicle, when formed, is so thin as to be negligible and where the solution is made very thin, no actual film is formed, but, on the contrary, there is merely an impregnation which binds the fibres of the paper together, as well as the grains of the tobacco together, causing a surface adhesion between the grains of tobacco where they contact with one another. In the preferred form of the invention, I do not form a film for I find the film undesirable as it tends to clog the interstices between the grains and interfere with the proper draft of the cigarette during smoking. In the drawing, I have attempted to show the adhesion of the grains or shreds of tobacco by heavy black lines to show that they are adhesively secured together and to the paper wrapper. On the exterior of the paper I have indicated the presence of the composition by a heavy black line which may or may not be a film of appreciable thickness or a film of such minute thickness as to be practically mere impregnation.

The finished cigarette of this invention possesses all the desirable characteristics of the conventional cigarette, so far as taste, aroma and smoking is concerned, without possessing the disadvantages to which I have hereinbefore referred. It has the further advantage that the lips will not stick to the paper or wet the same and the tobacco at the tip end will not be released into the smoker's mouth. Furthermore, the tip end of the cigarette will have appreciable body in that it will be materially more rigid than the conventional cigarette and will not be so readily crushed between the lips.

It will be apparent from the foregoing detailed description of this invention that it embodies numerous novel features. It provides a cigarette which, in its preferred form, has a treated moisture-proof paper at the smoking tip with treated tobacco at the corresponding portion of the cigarette and at the same time a cigarette having an appreciable body at the tip and without added wrappers, such as cork, straw or metal foil. I consider a cigarette embodying all of these characteristics to be most desirable, particularly when the standardized character of the tobacco and the paper are left unchanged in that portion of the cigarette which is to be

burned. It is however, possible that some manufacturers may prefer to manufacture cigarettes embodying certain features of this invention without, however, utilizing all. I have in mind in this connection, the use of the waterproofed tip leaving the rest or remainder of the paper untreated as hereinbefore described, but without treating the tobacco at the corresponding end of the cigarette. Furthermore, it is entirely possible that others may desire to treat the tobacco at the tip end of the cigarette to produce the stiffened body without treating the paper. For these reasons, the present invention is to be understood as fully commensurate with the appended claim.

I have hereinbefore referred to appplication of the composition by spraying or dipping, but I am aware that it may be applied by application rolls, dipping, brushing, flowing, spraying or otherwise and that physical contact may be obtained in other ways either with or without accompanying capillary flow of the composition.

I have noted that a cigarette treated in accordance with the manner hereinbefore described appears to afford a slightly cooler smoke than the conventional cigarette and therefore one having a better taste. I am unable to give a satisfactory explanation for this cooling effect, but it is notable and in all probability accounts for the slightly better taste of the cigarette thus produced; for the sensitivity of the smoker's tongue to the flavor of tobacco is materially increased when subjected to less heat.

The use of the particular composition which I have described is of importance as other better known and more common solutions which would waterproof and act as an adhesive have been found wholly unsuitable and undesirable in a cigarette. A solution formed by dissolving Celluloid in acetone is wholly undesirable. It is well recognized that acetone bites the tongue, particularly when heated, and it is practically impossible to eliminate it for it remains in the flakes or tobacco granules for long periods of time. If attempts are made to eliminate it by drying or by hot blasts of air, this dries out the tobacco to such extent that it forms a hot smoke and is wholly undesirable. Furthermore Celluloid is a mixture of cellulose and camphor, both of which, when used in the presence of heat, produce undesirable odors and tastes. Collodion is also impractical for it contains nitrated cellulose which, when subjected to heat, is toxic and has a pronounced odor and taste which spoils the aroma and taste of the cigarette. Latex is out of the question as it has an objectionable odor when heated, and must be used with ammonia or other alkaline material to keep it in solution during application, which latter materials also interfere with the taste and aroma of the cigarette. Cellulose acetate is also undesirable for it will, when subjected to heat and moisture of the mouth, result in the production of acetic acid with obvious undesirable results.

In the contradistinction to the foregoing compositions, the present invention fulfills all the requirements of a cool and pleasing smoke. The composition employed by me is non-toxic and odorless and even though traces of ethyl alcohol may remain for a while in the grains or shreds of the tobacco, this is not objectionable in any sense.

Having thus fully described the invention, what I claim as new and desire to secure by Letters Patent is:

A cigarette having one end portion of its paper wrapper externally waterproofed by the residue resulting from evaporation of the ethyl alcohol constituent of a solution of ethyl cellulose and ethyl alcohol, and the tobacco at the corresponding end of the cigarette being stiffened and bonded together and to the paper wrapper by a like residue.

LEO ROON.