United States Patent

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[54] **CIGARETTE HAVING COMPOSITE WRAPPER CONSTRUCTION**
1 Claim, No Drawings

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[50] **Field of Search** ..... 131/15, 15 B, 4 A, 17, 15 A, 2, 140–144, 9

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ABSTRACT: Cigarette with a composite wrapper consisting of two superposed thin sheets of paper fabricated of vegetable fiber stocks. The outer sheet is a porous conventional cigarette paper of good combustibility and ashing qualities. The inner sheet which is in contact with the tobacco is fabricated of uncoated, unsized and unimpregnated vegetable fiber stock and is essentially so poreless as to be practically impervious to the passage of air therethrough. The inner wrapper sheet burns at a rate slower than the tobacco underneath and the outer sheet in such wise that substantially all the air which is drawn through the cigarette during combustion is constrained, like in cigars and pipes, to pass axially through the burning coal, and thus to be less oxidizing than in conventional cigarettes. The produced smoke gives the feeling of being richer than that from conventional cigarettes made with the same tobacco, and tends to reduce inhalation.

CIGARETTE HAVING COMPOSITE WRAPPER CONSTRUCTION

RELATED APPLICATION

The present is a continuation-in-part of our copending application Ser. No. 471,662 filed on July 13, 1965, now abandoned.

The field of the invention is that of cigarettes intended as safer than the conventional ones because burning like cigars and pipes so that their smoke no longer incites inhaling.

DESCRIPTION OF PRIOR ART

According to the statistics contained in the 1964 Report to Surgeon General on Smoking and Health, the death rate of cigarette smokers is much higher than that of nonsmokers, while that of cigar or pipe smokers is about the same as for nonsmokers. In the past, notwithstanding that no carcinogen was found in cigarette smoke, which is not in cigar and pipe smoke as well, it was thought that the greater harm caused by cigarette smoking is due to unidentified chemical constituents of either the cigarette's paper or of its (acid) tobacco. The incrimination of the paper brought about proposals for replacement of cigarette paper by substitutes such as metallic foils, fiber-free regenerated cellulose films, plastic cellulose-free films, etc. These had the drawback that the resulted cigarette ash has disagreeable appearance and no strength. The incrimination of the cigarette's (acid) tobaccos have also led to the development of cigarettes made with cigar or pipe tobaccos, whose alkalinity was found unacceptable to the taste of most cigarette smokers.

At present, the same of the means used in trying to lower the high mortality of cigarette smokers is the improvement of the smoke through filter tips, poor tobaccos, and the use of very porous cigarette paper.

In our view, the default of the ways followed before us is that little attention was paid by developers of new cigarettes to the factor "inhalation of the smoke" which, because of the enormous difference in the percentage of inhalers and degree of inhalation between cigarette smokers and the cigar or pipe smokers, is the most striking characteristic of cigarette smoking. Based on experimental data found in the scientific literature, we concluded that switching from regular to impoverished smoke cigarettes incites most cigarette smokers to unconsciously inhale the smoke longer or deeper to compensate for its impoverishment in nicotine, so as to finally take into their body about the same amount of nicotine (and "-tars") as from regular cigarettes. The fact that the difference is absorbed through a very delicate organ, the lung, instead through the oral cavity, is necessarily detrimental. We have found a parallelism between the rise of the filter cigarette and the increase in the frequency of coronary heart disease, lung cancer, bronchitis and emphysema, known to be linked with the inhalation of cigarette smoke. As according to the data of the 1964 Report to Surgeon General, these diseases claimed 79.2 percent of the excess deaths of cigarette smokers. We hold that filter cigarettes are worse for health than regular cigarettes. thought the copending parent application, Ser. No. 471,662 of July 13, 1965, we presented the new idea that the ills of cigarette smoking stem from a physical property of the conventional cigarette paper, its porosity, and have incriminated it for the cigarette's incitation to inhaling. We disclosed in said application our experimental discovery that imperviousness to air in the wrapper of cigarettes induces them to behave like cigars and pipes in that their smoke is felt as being richer and that it no longer incites inhaling. Prior to said discovery, imperviousness to air in wrappers has occurred only as an involuntary consequence of structures proposed for special goals other than the achievement of imperviousness to the passage of air; and therefore those cigarettes present drawbacks, such as poor ash or objectionable compounds in their smoke, derived from the presence in the wrapper of materials demanded for the achievement of those special goals. Because ignoring said discovery, at the time we made this invention, nobody could have through to modify an impervious to air wrapper of the prior art in order to free it of its specific drawback while still retaining that valuable property, the imperviousness to the passage of air.

In said parent application, among other solutions, we proposed a cigarette whose practically impervious to air wrapper is made of two sheets of paper, one of them being practically impervious to the passage of air. In this continuation-in-part we present new subject matter regarding that cigarette.

BRIEF SUMMARY OF INVENTION

This invention covers a cigarette with a practically impervious to air double sheeted paper wrapper, said imperviousness being due to the presence, in that wrapper, of a practically impervious to air sheet of an uncoated, unsized and unimpregnated vegetable fiber paper. This sheet is in contact with the tobacco and is covered by a porous conventional cigarette paper of good combustibility and ashing qualities. Because of our previously mentioned discovery that cigarettes with impervious to air wrappers behave like cigars and pipes, we made the imperviousness to air of the wrapper, the very goal of the invention. This led to our concept of a wrapper composed exclusively of vegetable fiber stock paper, thus free of the drawbacks of cigarettes with impervious to air wrappers of the prior art.

DETAILED DESCRIPTION OF THE INVENTION

The cigarette, that makes the object of this continuation-in-part application, comprises a charge of tobacco and a substantially cylindrical composite wrapper therearound, the said wrapper being practically impervious to the passage of air and being composed of two superposed thin sheets of paper fabricated of vegetable fiber stocks. The outer sheet of said composite wrapper is a conventional cigarette paper, is porous and of good combustibility and ashing qualities. The inner sheet, that which is in contact with the tobacco, is fabricated of uncoated, unsized and unimpregnated vegetable fiber stock, and is essentially so poreless as to be practically impervious to the passage of air therethrough. Because of said imperviousness and the resulting lack of circulation of air through it, the inner wrapper sheet burns at a rate slower than the tobacco underneath (which being a porous thin material, is pervious to the passage of air) and than the porous outer sheet.

The resulted retardation in the burning of the inner sheet maintains, during the puff, a shield of unburnt wrapper around the short peripheral ring of the just ignited tobacco that contacts the base of the glowing coal cone. Because of that shield, substantially all the air which is drawn through our cigarette during the puffing period of its combustion is constrained, like in cigars and pipes, to pass axially through the burning coal, where it loses much of its free oxygen. Therefore, when it reaches said peripheral ring of just ignited tobacco and afterwards the distillation zone, that air and the products of combustion are less oxidizing than in the corresponding zones of the conventional cigarettes where, in absence of said shield during the puffing period, the combustion of that ring employs mostly oxygen-rich fresh air entering radially directly from the atmosphere. It is known that the largest part of the mainstream smoke is derived from the burning of the peripheral zones of the tobacco charge and that the temperature there is higher than inside. The result is that in the invented cigarette, like in cigars and pipes, the nicotine and its related alkaloids enter the smoke less degraded by oxidation and pyrolysis than in conventional cigarettes. Therefore the smoke of the invented cigarette, like that from cigars and pipes, gives the feeling of being "strong" and rich in "kick" and, as we have experimentally ascertained, no longer incites the smoker to inhale it.

Examples of materials suitable for employment as the inner sheet of our wrapper are the glassiness, the tracing papers, as

well as all papers which are fabricated from vegetable fiber stocks and were submitted to hydration and calendering until becoming essentially poreless and thus practically impervious to the passage of air.

The preferred embodiment of the invention is a cigarette as described above, in which the inner sheet is fabricated from vegetable fiber stocks which, like those used in the manufacture of conventional cigarette paper, contain mostly flax pulp, the taste and odor of the products of its combustion being the least objectionable to smokers.

The functions of the two sheets of the composite wrapper of the invented cigarette differ as follows. That of the practically impervious to air inner sheet, performed through its retard in burning, is to build the described shield which assures that substantially all the air drawn through the cigarette during the puff is constrained to pass axially through the burning coal. The outer sheet has multiple functions. One is to increase the self-burning capability in the intervals between puffs. Additions of nitrates, known to enhance paper combustibility, may be used in the porous sheet inasmuch as, contrary to what happens in a conventional cigarette, the gases produced by the nitrates' decomposition do not enter into the mainstream smoke of the invented cigarette, because of the described shield effect of the practically impervious to air inner sheet. A second function of the outer sheet, performed both during the puff and in the intervals between puffs, is to confer desired qualities to the ash. The described two functions are assured through our provision that the conventional cigarette paper used as the outer wrapper sheet be one of good combustibility and ashing qualities. A third function performed by said outer sheet is to mask, through its opacity, the brown stains of the condensate of nicotine and "tars" of the smoke, which otherwise would be visible because of translucency of most impervious to air vegetable wrappers as a result of the hydration of the fibers, an operation employed to achieve imperviousness to air.

We claim:

A cigarette comprising a charge of tobacco and a substantially cylindrical composite wrapper therearound, the said wrapper being composed of two superposed thin sheets, the outer sheet of said composite wrapper consisting of conventional cigarette paper fabricated of vegetable fiber stock being porous and of good combustibility and ashing qualities, the inner sheet which is in contact with the tobacco being fabricated of uncoated, unsized and unimpregnated vegetable fiber stock and essentially so poreless as to be practically impervious to the passage of air therethrough, the inner wrapper sheet burning at a rate slower than the tobacco underneath and the outer sheet and in such wise that substantially all the air which is drawn through the cigarette during combustion is constrained to pass axially through the burning coal.

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