March 10, 1936. N. SULZBERGER 2,033,791

MOISTUREPROOF CIGARETTE AND PROCESS OF MAKING SAME

Filed May 13, 1932

Fig. 1.



Fig. 2.



Fig. 3.

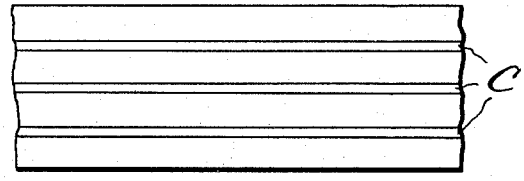


Fig. 4.

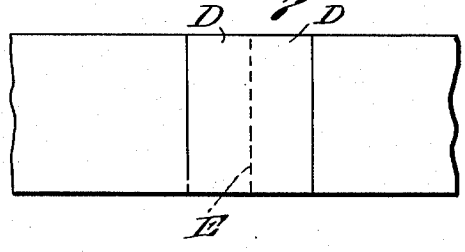
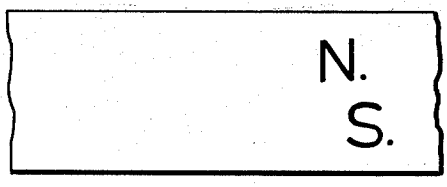


Fig. 5.



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MOISTUREPROOF CIGARETTE AND PROCESS OF MAKING SAME

Nathan Sulzberger, New York, N. Y.

Application May 13, 1932, Serial No. 611,195

17 Claims. (Cl. 131—52)

The objectionable property of cigarettes sticking to the lips which often causes tearing of the skin, thereby readily creating conditions for sores and infections, has long been sought to obviate. Tips of cork, straw, paper etc. have been added requiring special adhesives, also the treatment of the paper with certain more or less waterproof substances has been proposed, all of which had certain disadvantages, as visibility, affecting the smoking (odor) etc.

The object of my invention is—among other things—to prepare a water proof tip for cigarettes, which is "lip-proof", tasteless and gives no objectionable odor to the smoking and that even when the burning parts of the paper are treated (so that the paper may be treated in whole or in part, at one or at both ends, in stripes—see drawing—etc.), at the same time being practically unnoticeable to the eye and touch. My treatment, containing oxydizing properties, tends also to improve the combustibility, particularly, of the paper and also strengthens the same, so that thinner (lesser amounts of) paper may be employed, if desired—thus, giving a purer tobacco smoke. When the whole paper is treated, the wrapper in its waterproof condition will also act as a preserver for the moisture and aroma and other volatile products of the tobacco. Furthermore, although the material itself, which I use, is of a highly combustible nature, when employed as a coating, (although it may penetrate), as herein described, does not render the paper dangerously inflammable, such paper behaving similarly to the untreated paper, except that the smoke of the glowing paper seems to be less pungent to the nose.

The invention is illustrated in the accompanying drawing, in which Fig. 1 shows a cigarette with the tip treated in accordance with the invention;

Fig. 2 shows a cigarette with both ends treated;

Fig. 3 shows a cigarette with different parts of the wrapper treated;

Fig. 4 shows an arrangement for forming two cigarettes simultaneously with treated tips; and

Fig. 5 illustrates the treatment of the entire wrapper of the cigarette.

I, herewith, giving an example of my invention, it being distinctly understood, that I am not in anywise limiting myself to the given specific description as to the quality, quantity of materials or process used. All modifications as will suggest themselves to those skilled in the pertaining arts being considered as coming under the scope of my invention:—

A very small amount of paraffine was taken up in carbon tetrachloride, sufficient to obtain a clear liquid. To this was added a solution of collodion prepared by stirring one part of the same into about two parts of ether (U. S. Pharmacopoeia collodion was used being described as a solution of tetra-nitro-cellulose in ether and alcohol). With this liquid (clarify, if necessary, with acetone or other solvent) cigarettes were treated at the end covering about ⅔ of an inch of the paper. On evaporation of the solvent, an unnoticeable tip was obtained, which made the cigarette "lip-proof" and which tip did not shrivel up the paper, even after keeping. (See drawing Fig. 1, A designating the treated tip). Instead of treating only one end, both ends may be treated (Fig. 2, at A and B). The paper, also before being filled with the tobacco, may be treated in whole (Fig. 5) or in part (for example, striped as in Fig. 3, at C etc.). The paper may be treated by placing stripes on the same at suitable intervals, which, when cut in two, will give two tips (Fig. 4 D D—E being the cutting line). Monograms, advertising matter etc. may be placed on the paper as shown in Figure 5. These pliable tips will not tear like the untreated paper.

While paraffine has been referred to as a specific flattening agent for the nitrocellulose, it is to be understood that flattening agents other than paraffine, such, for example, as butyl stearate, may be used. When color is desired, such may also be embodied in the solution, as, for example, a red (rouge-like) color to counteract the discoloration of the cigarette when coming in contact with lip-rouge. Aromatic substance may be embodied, as menthol, eucalyptus, oil of cloves, tobacco-aroma (and color), also substances having medicinal value when inhaled and smoked. Plasticizers etc., if desired, may also be employed. The paper and cigarette may be treated differently at the different points. Thus the end may only be colored, the rest remaining uncolored. Also only portions may be treated with aromatics and perfumes. If the strengthening alone of the paper is desired, the paper may be treated only partly (see Fig. 3, at C). Additions to make the paper more or less opaque or translucent may be added. Where portions of the paper are treated which will burn up during smoking, all additions should be best of such nature that they will not detrimentally affect the flavor and odor of the smoke. When treated

with the collodion solution, as above described, the cigarette burns well and no objectionable odor is evinced, even where the paper is treated in its entirety.

It is very remarkable to note that collodion containing the highly inflammable and quickly combustible tetra-nitro-cellulose, which—when its solvent has evaporated—flares up dangerously even when coming in contact only with the glowing cigarette—does not show increased inflammability even when in contact with cigarette-paper (itself so inflammable). Thus, even when the whole cigarette is coated, does the same burn without dangerously flaring up and, when the collodion solution is used as described in the example (or with other suitable modification) the treated cigarette will appear and behave—also when smoked—very much like the ordinary cigarette, although comprising the valuable improvements herein described and enumerated.

Other forms of nitro-cellulose (containing other amounts of nitro-groups) alone or in mixture with other forms of cellulose (esters, compounds etc.) and additions of desired substances shall be considered as coming under the scope of the invention, so long as these mixtures and added substances will not detrimentally interfere with their use for the purposes set forth, viz, in particular: render the treated parts, particularly the mouth-end of the cigarette, "lip-proof" and waterproof to desired extent, not make the paper and wrapper dangerously inflammable and not objectionably affect the flavor and odor of the smoke, besides keeping the appearance of the treated parts practically like those of the ordinary (untreated) cigarette—except, of course, where differentiation is desired, as when coloring matter is added. Any suitable solvent ether, acetone etc. may be selected (or mixtures) for the nitro-cellulosic material and additions. Thus, also less or non-inflammable ones. It is, however, best to employ solvents which readily evaporate leaving no foreign odor. The solvents may be recovered and treated, if necessary, so as to be useable again. The process may be done by hand or machine treating the paper or the cigarette. Fillable cigarette-tubes and loose leaves of cigarette paper may also be treated, as are marketed in book-form etc. By treating both ends, the annoyance of looking for the right mouth-end is avoided. If ordinary too concentrated collodion solution is used, the treated part will shrivel.

I claim:

1. The process of making waterproofed cigarette paper which comprises treating at least a portion of the paper, including the portion forming the tip, with a dilute solution of nitrocellulose containing a small amount of paraffin as a flattening agent and evaporating the solvent, the dilution of the solution and the proportions of nitro-cellulose and paraffin being so regulated, and the amount of solution applied being such, that the treated portions of the paper are waterproof but free from noticeable gloss and have substantially the appearance of untreated paper.

2. A cigarette having a wrapper impregnated at both ends with a dilute solution of a cellulosic compound and a flattening agent, which solution will leave the wrapper free from objectionable odors and flavors when ignited and which will also leave the wrapper free from a shiny appearance and with the appearance of an untreated wrapper.

3. A cigarette having a wrapper which has been impregnated throughout substantially its entire length with a dilute solution including a cellulosic compound, paraffin and an aromatic substance, which solution will leave the wrapper free from objectionable odors and flavors when ignited, and which will also leave the wrapper free from a shiny appearance and with the appearance of an untreated wrapper.

4. A cigarette having a wrapper impregnated at least at one end with a dilute solution of a cellulosic compound and paraffin, which solution will leave the wrapper free from objectionable odors and flavors when ignited, and which will also leave the wrapper free from a shiny appearance and with the appearance of an untreated wrapper.

5. A cigarette having a wrapper which has at least one end impregnated with a dilute solution of a cellulosic compound and a flattening agent, which solution will leave the wrapper free from objectionable odors and flavors when ignited, and which will also leave the wrapper free from a shiny appearance and with the appearance of an untreated wrapper.

6. A cigarette having a wrapper impregnated at both ends with a dilute solution of nitrocellulose and a flattening agent, the intermediate portion of the wrapper being untreated with said solution, the dilution of the solution and the proportions of nitrocellulose and flattening agent being so regulated and the amount of solution applied being such that the treated end portions of the wrapper are waterproof but still retain the same appearance as the untreated intermediate portion.

7. The process of making waterproof cigarette paper which comprises treating at least a portion of the paper, including the portion forming the tip, with a dilute solution of a cellulosic material containing a small amount of a flattening agent and evaporating the solvent, the dilution of the solution and the proportions of the cellulosic materials and the flattening agent being so regulated, and the amount of solution applied being such, that the treated portions of the paper are waterproof but free from noticeable gloss and have substantially the appearance of untreated paper.

8. The process of making waterproof cigarette paper which comprises treating at least a portion of the paper, including the portion forming the tip, with a dilute solution of nitrocellulose containing a small amount of a flattening agent and evaporating the solvent, the dilution of the solution and the proportions of the nitrocellulose and flattening agent being so regulated, and the amount of the solution applied being such, that the treated portions of the paper are waterpoof but free from noticeable gloss and have substantially the appearance of untreated paper.

9. The process of making waterproof cigarette paper which comprises treating at least a portion of the paper, including the portion forming the tip, with a dilute solution of cellulosic material containing a small amount of paraffin as a flattening agent and evaporating the solvent, the dilution of the solution and the proportions of the cellulosic material and the paraffin being so regulated, and the amount of solution applied being such, that the treated portions of the paper are waterproof but free from noticeable gloss and have substantially the appearance of untreated paper.

10. A cigarette having a wrapper which has at least one end impregnated with a dilute solution

of nitro-cellulose and a flattening agent, which solution will leave the wrapper free from objectionable odors and flavors when ignited and which will also leave the wrapper free from noticeable gloss and with the appearance of an untreated wrapper.

11. A cigarette having a wrapper which has at least one end impregnated with a dilute solution of nitro-cellulose and paraffin, which solution will leave the wrapper free from objectionable odors and flavors when ignited, and which will also leave the wrapper free from noticable gloss and with the appearance of an untreated wrapper.

12. A cigarette wrapper having both ends impregnated with a dilute solution of a cellulosic compound and paraffine, which solution will leave the wrapper free from objectionable odors and flavors when ignited and which will also leave the wrapper free from noticeable gloss and with the appearance of an untreated wrapper.

13. A cigarette having a wrapper which has been impregnated throughout substantially its entire length with a dilute solution of a cellulosic compound and a flattening agent, which solution will leave the wrapper free from objectionable odors and flavors when ignited, and which will also leave the wrapper free from a shiny appearance and with the appearance of an untreated wrapper.

14. A cigarette having a wrapper which has been impregnated throughout substantially its entire length with a dilute solution of a cellulosic compound and paraffine, which solution will leave the wrapper free from objectionable odors and flavors when ignited, and which will also leave the wrapper free from a shiny appearance and with the appearance of an untreated wrapper.

15. A cigarette having a wrapper which has been impregnated throughout substantially its entire length with a dilute solution including nitrocellulose and a battening agent, which solution will leave the wrapper free from objectionable odors and flavors when ignited, and which will also leave the wrapper free from a shiny appearance and with the appearance of an untreated wrapper.

16. A cigarette having a wrapper which has been impregnated throughout substantially its entire length with a dilute solution containing nitrocellulose and paraffine, which solution will leave the wrapper free from objectionable odors and flavors when ignited, and which will also leave the wrapper free from a shiny appearance and with the appearance of an untreated wrapper.

17. A cigarette having a wrapper impregnated at both ends with a dilute solution including nitrocellulose and paraffine, which solution will leave the wrapper free from objectionable odors and flavors when ignited, and which will also leave the wrapper free from a shiny appearance and with the appearance of an untreated wrapper.

NATHAN SULZBERGER.