N. SULZBERGER.

CIGARETTE.

APPLICATION FILED SEPT. 21, 1920.

1,391,427. Patented Sept. 20, 1921.

Fig. 1,

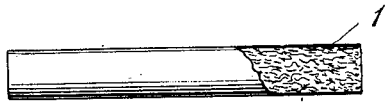
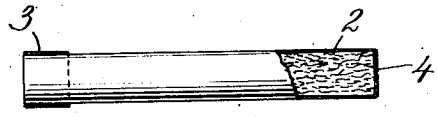


Fig. 2.



Nathan Sulzberger Inventor

By his Attorneys
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UNITED STATES PATENT OFFICE.

NATHAN SULZBERGER, OF NEW YORK, N. Y.

CIGARETTE.

1,391,427. Specification of Letters Patent. Patented Sept. 20, 1921.

Application filed September 21, 1920. Serial No. 411,850.

To all whom it may concern:

Be it known that I, NATHAN SULZBERGER, a citizen of the United States, residing at New York, in the county of New York, State of New York, have invented certain new and useful Improvements in Cigarettes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in cigarettes having wrappers of non-carbonaceous asbestos.

Asbestos fiber or pulp is commonly made into sheets with the use of organic binders or with organic filling or sizing material. When such asbestos, with admixed organic matter, is heated to high temperatures, the organic matter tends to char, causing the asbestos to become discolored and often giving off objectionable odors during the charring operation. The presence of such organic matter also subject to decomposition therefore makes the asbestos less valuable for certain of the purposes for which asbestos is particularly useful, such as high temperature insulation for catalytic processes etc. Furthermore, where such carbonizing or charring of the organic matter takes place, and where the charred residue remains admixed with the asbestos, this makes the asbestos unsightly and discolored. For example, when asbestos is used for insulating purposes, and when it is applied to hot surfaces, or to surfaces which subsequently become highly heated, as in the case of high pressure steam-pipe wrappings or insulation, any admixed organic binder or filler, particularly if it is of the nature of animal glue or size, will not only tend to carbonize and darken the asbestos, but it may give off unpleasant and objectionable odors. When asbestos paper is used in making cigarette wrappers, and where the asbestos paper contains an organic binder, this binder is similarly apt to give off objectionable odors when the cigarette is smoked, and the portion of the cigarette that has been burned may have the asbestos wrapper badly discolored from the carbonaceous residue. This objectionable carbonaceous residue can be removed, for example, by treating the paper with saltpeter, as described in my prior patent application, Serial No. 409,958, filed September 13, 1920, in which case the saltpeter acts as an oxidizing agent and frees the asbestos from its carbonaceous residue.

According to the present invention, I provide cigarettes with a wrapper of asbestos which is substantially free or freed from admixed organic binder and carbonaceous material so that it can be used without the objectionable features attending the use of asbestos admixed with such organic binders or carbonaceous materials.

In the accompanying drawing, I have illustrated, in a conventional and diagrammatic manner, two cigarettes embodying and illustrating the invention. In the accompanying drawing,

Figure 1 shows a cigarette provided with a wrapper 1 of asbestos of the character referred to, and

Fig. 2 shows a cigarette with a similar wrapper 2 and having also a tip 3 of cork or other material and having its outer end closed as indicated at 4.

In the preferred practice of the invention, the asbestos is formed into a sheet or layer of suitable thickness with the aid of a suitable organic binder, and the organic binder is then more or less completely removed by subjecting the asbestos to a glowing operation at a sufficiently high temperature. It is generally best not to heat any higher or longer than is necessary for the removal of organic material that requires oxidation, and it is desirable to heat the material as briefly as possible, as prolonged heating or heating to an excessive temperature tends to make the asbestos brittle and non-pliable, while by a properly regulated glowing and oxidation the asbestos sheet is left sufficiently pliable for use as a wrapping paper and for various other purposes. The glowing of the asbestos should of course be carried out under oxidizing conditions and I have found it particularly advantageous to promote the oxidation by treating the asbestos paper, previously to the glowing, with an oxidizing agent, such as saltpeter, which will assist in the oxidation of the carbonaceous material during the glowing operation. Such an oxidizing agent may be added to the asbestos material either before or after it has been made into its finished state. The oxidizing agent or agents may thus be used in the form of solutions with which the paper is treated or saturated, and the subsequently dried paper then subjected

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to a short glowing operation to burn out the carbonaceous material. The oxidizing agent may be accompanied with small amounts of catalytic material which promote the oxidation.

The asbestos sheet can be formed in much the usual way, from asbestos pulp, or from a composite pulp made of admixed asbestos fibers and paper pulp fibers, and the composite sheet, after its formation, can then be subjected to a glowing operation with or without the addition of an oxidizing agent to burn out the admixed paper pulp fibers and leave the asbestos residue in the form of a more or less porous sheet.

In the production of cigarettes with an asbestos wrapper it is particularly desirable to have an asbestos paper which will not give off any objectionable odors during the smoking of the cigarette and which will leave a light colored asbestos wrapper after burning, without objectionable dark color due to carbonization of the organic binder.

Asbestos paper of appropriate thinness is formed from asbestos pulp and organic binder in much the usual way. The asbestos material or the resulting thin, dry sheet is treated with a solution of saltpeter and the sheet, after drying, is subjected to a temperature sufficiently high to destroy the organic binder and remove any carbonaceous residue. When this treated paper is brought into a flame, it turns dark or black for a very short time, soon changing to a white, or almost white, product. The destruction of the carbonaceous content of the asbestos is often accompanied with an objectionable odor, but suitable provision can be made for drawing away the objectionable products of combustion so that they do not accumulate to the injury of the operator or operators. If the glowing of the paper for the removal of its organic material is properly carried out, with the avoidance of prolonged heating and excessive temperatures, the paper is still sufficiently pliable for use in forming a cigarette wrapper to take the place of the ordinary cigarette paper. This paper can be readily stuck together at its edges, when used as a cigarette wrapper, with a suitable preferably inorganic adhesive such as sodium silicate. When a cigarette wrapper is made of this paper, the wrapper is often lighter in color after the tobacco has been smoked than before its use.

In the manufacture of cigarettes with the non-carbonaceous asbestos paper, above referred to, the paper may be cut into pieces of proper shape either before treatment with the oxidizing agent or before the glowing operation or after the glowing operation has taken place. The process is very well adapted for carrying out in a continuous manner by treating a continuous sheet of asbestos paper containing the oxidizing agent by subjecting this sheet in a continuous manner to the glowing operation with proper regulation of the speed of the paper through the flame to insure that the carbonaceous material shall be more or less completely removed without objectionable over-heating. The paper may thus be formed in the shape of a reel and used in much the same manner as ordinary cigarette paper is now used in cigarette machines.

The asbestos paper may be suitably colored, to give it a pleasing color, but if the coloring matter is introduced before the glowing operation, it should be one which will withstand the glowing and oxidizing treatment, for example, inorganic oxids. The finished cigarette or the paper before it is made into the cigarette wrapper may be further treated, if desired, to provide it with a suitable tip, etc. A cork or paper (colored) tip may thus be applied as illustrated in Fig. 2, or the end of the asbestos paper wrapper may be coated with chemicals or other substances which will further protect the lips of the smoker. The finished cigarette may be closed at the outer end, if desired, as illustrated, for example, at 4, in Fig. 2, and this closed end will nevertheless permit the tobacco to be lighted because of its permeability when heated to incandescense. The end of the cigarette may thus be closed by a separate tab attached to the wrapper or by a separate cap, or otherwise. The asbestos paper may also be compounded with suitable loading or filling materials which modify it and make it better adapted for its intended use. For example, a mineral filler can be used which will withstand the glowing operation.

The use of an excess of the oxidizing agent is sometimes advantageous so that the cigarette wrapper after the removal of its organic matter will still contain sufficient oxidizing agent to promote the combustion of the tobacco during smoking. The asbestos paper after glowing may thus be treated with a solution of saltpeter, or an excess of the saltpeter can be used before the glowing operation. Where the extra oxidizing agent is not desired, it will be evident that only sufficient need be used to promote the glowing operation (or may be removed after the oxidation).

Where the asbestos paper is treated with sufficient solution of the oxidizing agent to make it thoroughly moist, it should preferably be dried on a smooth surface which will give it a smooth finish, at least on one side, for example, by passing it over smooth, heated rolls.

Where the asbestos paper is freed from organic material and the cigarette wrapper has its edges crimped or stuck together with a sodium silicate solution, the resulting

wrapper is free or substantially free from carbonaceous matter and will give off no objectionable odor during smoking, nor will the burned portion of the cigarette have been objectionably darkened. Where it is desirable to give added rigidity to the cigarette wrapper, some additional rigidity can be secured by the proper securing together of the overlapping edges of the wrapper with a sodium silicate solution.

It will thus be seen that the improved asbestos paper or sheets of the present invention have been freed from objectionable features such as result from heating and combustion of organic binders and that the asbestos material is free, or substantially free, from such organic material as gives objectionable discoloration or odor upon heating.

When cigarette wrappers are made of such asbestos paper, originally containing no carbonaceous admixture, or are subsequently freed from such admixture, the wrapper has the advantages above referred to and is of particular value for use in making a cigarette with a wrapper which retains its form and shape and holds the ashes during smoking.

I claim:—

1. A cigarette having a wrapper of asbestos which retains its shape during smoking, and which can be smoked without discoloration of the wrapper, said asbestos wrapper being substantially free from carbonaceous material.

2. A cigarette having a wrapper of asbestos paper which retains its shape during smoking, and which can be smoked without discoloration of the wrapper, said asbestos wrapper being substantially free from carbonaceous material, and containing a small amount of an oxidizing agent.

3. A cigarette having a wrapper of asbestos paper which retains its shape during smoking, and which can be smoked without discoloration of the wrapper, said asbestos wrapper being substantially free from carbonaceous material and containing a small amount of saltpeter.

4. A cigarette having a wrapper of asbestos paper which retains its shape during smoking, and which can be smoked without discoloration of the wrapper, said asbestos wrapper being substantially free from carbonaceous materials, and having its edges secured together with an inorganic adhesive.

5. A cigarette having a wrapper of asbestos paper which retains its shape during smoking and which can be smoked without discoloration of the wrapper, said asbestos wrapper being made of paper containing organic matter and having the organic matter removed therefrom by a glowing operation in the presence of an oxidizing agent, the said wrapper being porous, due to the removal of the organic matter therefrom, and containing a small amount of an oxidizing agent.

In testimony whereof I affix my signature.

NATHAN SULZBERGER.

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