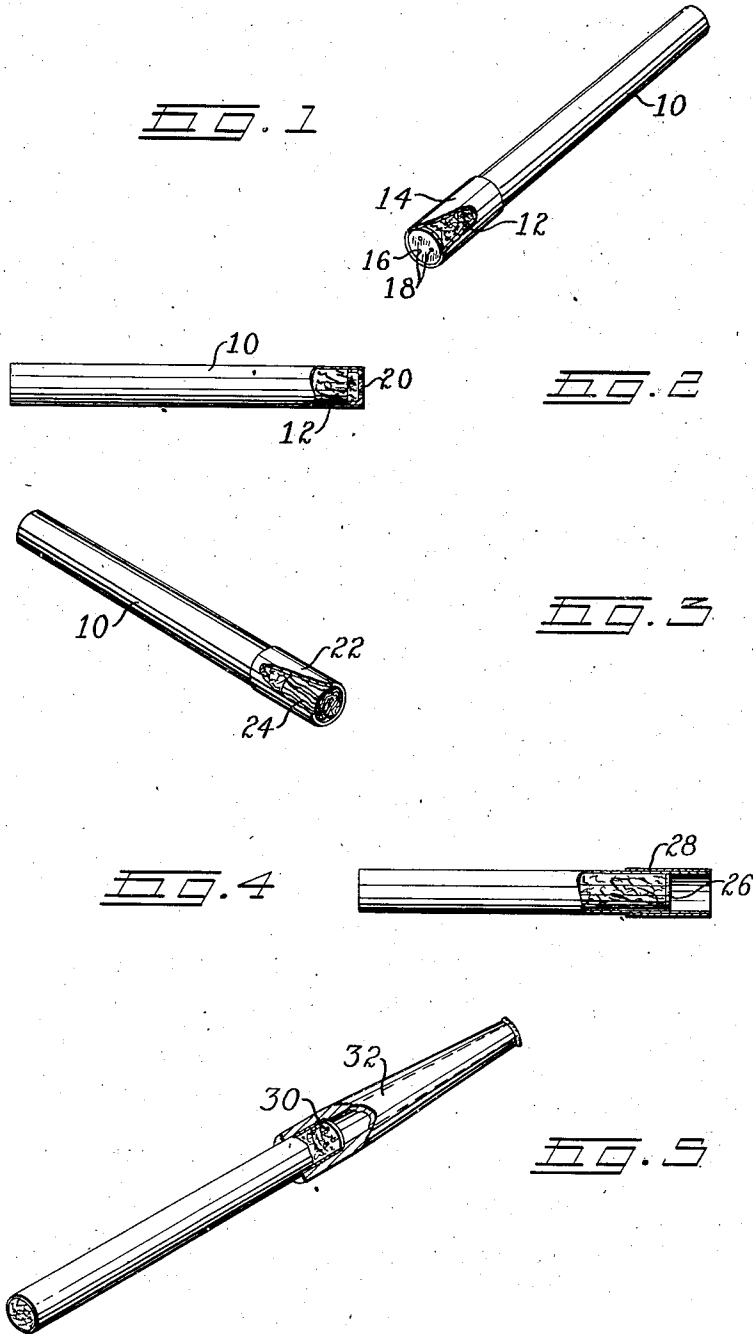


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R. S. STRIEFLING  
CIGARETTE OR THE LIKE

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# UNITED STATES PATENT OFFICE

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## CIGARETTE OR THE LIKE

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### 1 Claim. (Cl. 131-52)

My invention relates to improvements in cigarettes or the like or articles of a similar character.

An object is to provide a cigarette or like article characterized by having associated therewith a filter medium so impregnated or treated as to substantially filter out acid and nicotine fumes from that portion of the smoke which is drawn into the mouth by the smoker.

The principal products of cigarette smoke are carbon dioxide, water vapor, acid fumes, nicotine vapors, and tar. The first two substances are not generally regarded as harmful to the smoker. Those components of the smoke which are generally regarded as harmful are the acid fumes and the nicotine vapors. Only a small portion of these harmful ingredients resulting from the combustion enter the smoker's system with the smoke drawn into the mouth. Much of such harmful products is consumed or drifts away with the smoke from the burning end of the cigarette.

It has been found that if a suitable filter medium, such as porous paper fabric, is treated or impregnated with suitable substances such as certain of the alkaline earth compounds as, for example, calcium or magnesium oxide or hydroxide, preferably in the amorphous or colloidal state that the filter medium becomes particularly effective in absorbing and neutralizing the acid and nicotine fumes in the smoke. Such filter medium is impregnated to such an extent as to be definitely alkaline but not so heavy as to be irritating to the smoker.

If desired that portion of the end of the cigarette which is held in the mouth of the smoker may be entirely free from such impregnation, the impregnated filter portion being spaced from the extreme end portion so held.

More particularly, my invention resides in the provision of a filter medium associated with a cigarette or other tobacco containing smoker's article which filter medium is sufficiently porous to pass the smoke therethrough and is impregnated with a substance which operates to absorb the acid and nicotine fumes passing through the medium. In the preferred embodiment the impregnating substance functions not only because of its porous structural character to mechanically absorb such undesirable fumes and vapors but also functions to chemically neutralize the acid fumes passing therethrough.

The invention is shown particularly in association with a cigarette but such filter medium might be associated with a cigarette or cigar holder, or the like.

Other objects, advantages and meritorious characteristics of this invention will more fully appear from the following description, appended claim and accompanying drawing, wherein:

Figure 1 illustrates an embodiment of my invention wherein the filter medium forms a part of what may be a removable cap adapted to be received over the end of a conventional cigarette,

Fig. 2 illustrates an embodiment of my invention wherein the filter medium forms an integral part of the cigarette structure,

Fig. 3 illustrates an embodiment of my invention wherein the filter medium differs in detail in construction from that shown in Figs. 1 and 2,

Fig. 4 illustrates a modified form of my invention, and

Fig. 5 illustrates an embodiment of my invention wherein the filter medium is adapted for use in a cigarette holder or the like.

In the various embodiments of my invention illustrated in the drawing the filter medium is so disposed that the smoke drawn by the smoker into the system from the burning tobacco is caused to pass through the filter medium. In a cigarette this filter medium may constitute an integral part of the cigarette wrapper or structure or it may be separable therefrom and it may include, if desired, the wrapper or portion thereof in addition to a filter disc or diaphragm and it may be positioned at the extreme end of the mouth piece or spaced therefrom. Furthermore, the filter medium may be embraced in a structure which is capable of assembly in a holder or other similar article adapted to support a cigarette or cigar or even forming a part of the smoke passageway of a tobacco burning pipe. The embodiments shown in the drawing are illustrative.

In Fig. 1 the cigarette is illustrated as provided with the usual wrapper 10 and filler of tobacco 12. A cap 14 may be provided. The cap is cup shaped to be opened at one end and closed at the opposite end. The closed end is provided with a disc or diaphragm element 16 which is of porous fibrous structure such as relatively porous paper that is securely fixed as a closure end for the cap. This porous diaphragm 16 may be impregnated with a suitable absorbing compound as hereinafter more particularly described and here characterized as an impregnant so that when smoke is drawn therethrough the acid fumes and nicotine fumes are absorbed thereby. Not only are they absorbed thereby but as will also more fully appear hereinafter

they are chemically neutralized so that only a very small portion of these materials generally regarded as harmful will be drawn into the smoker's system. The filter disc 16 is normally

5 sufficiently porous and is so constructed for this purpose as to permit the smoke to be readily drawn therethrough and if so desired the porosities may be increased by small apertures such as 18.

10 This cap 14 is here shown as removable so that the caps may be sold separately and may be inserted by the user over the end of any conventional cigarette. It is obvious, however,

15 hesively secured to any particular cigarette and sold therewith forming an integral part of the cigarette structure.

In Fig. 2 the filter forms an integral part of the cigarette structure though here the filter

20 is indicated as 20 and is inserted in the mouth piece end of the cigarette wrapper 10 as indicated. The filter is impregnated as described and is of a porous character and serves the same purpose as the filter in the cap structure of

25 Fig. 1.

In Fig. 3 the filter is of a somewhat different character. The mouth piece end of the cigarette may be a cork or other tip portion 22 and the filter is indicated as 24. This filter may

30 be formed of a porous paper which may be creped and rolled up into a cylinder and inserted as shown into the mouth piece portion 22 of the cigarette as a cylindrical roll. Such paper is of course impregnated or treated as

35 heretofore referred to and as hereinafter more particularly described.

In the construction shown in Fig. 4 the filter proper is indicated as 26 and it is carried in a mouth piece portion 28 which may be of the

40 type of a cylindrical tape but is positioned spaced from the end of such mouth piece portion as shown. In this case the mouth piece portion might be left free from impregnant material and the filter piece 26 alone impregnated and there

45 would not then be any contact of the impregnant material with the lips of the smoker.

It is apparent that in any of these forms the entire cigarette wrapper or the mouth piece end

50 portion of the wrapper may also be impregnated with the material that is used as a treatment for the disc filter proper. Such impregnation will serve to neutralize and absorb some of the acid and nicotine fumes because of contact with the wrapper itself as these fumes pass through the

55 cigarette.

In Fig. 5 the filter medium is illustrated as a disc or diaphragm element 30 which may be

received within the socket end of a cigarette holder 32 and the cigarette inserted thereagainst. Such a disc or diaphragm element might be used

5 in combination with a cigar holder. It might be inserted in a provided part of the smoke passageway through a pipe stem, or the like.

That portion of the paper or sheet of filter material which is impregnated or treated may be treated with various compounds or substances to render it highly absorptive of the fumes and

10 vapors which are objectionable. I have found that the alkaline compounds such as calcium oxide and calcium hydroxide and magnesium oxide and magnesium hydroxide are particularly

15 effective. They function both by chemical neutralization and chemical absorption to eliminate the acid fumes passing therethrough with the smoke. They also function to absorb the nicotine

20 vapors.

Such oxides and hydroxides should be of an

25 amorphous or colloidal character such as result from their formation by the wet process of manufacture as distinguished from the dry process of roasting. When precipitated in such wet

30 process they possess the desired porous physical structure which makes them particularly effective in the mechanical absorption of harmful fumes. They also function chemically to neutralize the acid fumes. The carbonates of calcium and magnesium may be used but they are

35 not so effective as the oxide or hydroxide of these elements.

It has also been found that aluminum oxide and aluminum hydroxide in the colloidal and in the amorphous state function also by chemical as well as mechanical absorption to the same

40 end. These aluminum compounds may be either in the natural form such as bauxite or artificially prepared compounds.

Certain siliceous substances such as silica gels

45 may also be used though they function primarily by way of mechanical absorption. Other siliceous materials such as certain of the clays as, for example, bentonite, preferably activated, also possess useful absorption values and may be used. Other clays such as ordinary clay, kaolin, fire clay and china clay may be used.

What I claim:

A cigarette having a fibrous wrapper and a fibrous porous structural filter disposed within

50 the mouthpiece end and through which filter smoke drawn through the wrapper must pass, said wrapper and filter being impregnated with an oxide or hydroxide of that group of materials comprising calcium, magnesium, aluminum and

55 silicon.

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