

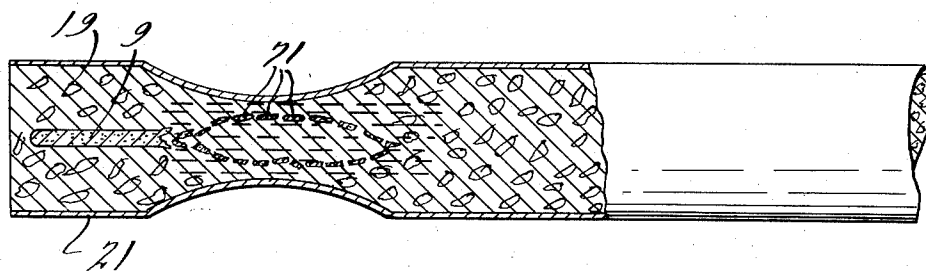
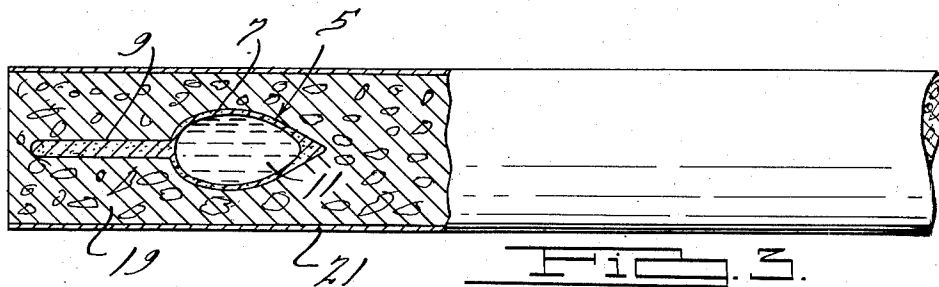
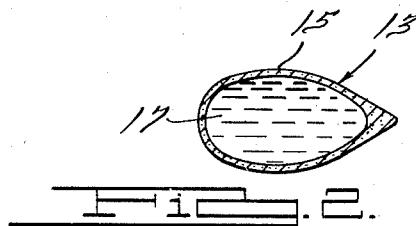
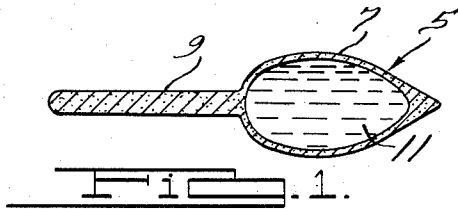
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CIGARETTE FILTER CONSTRUCTION

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CIGARETTE FILTER CONSTRUCTION

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4 Claims. (Cl. 131—10)

The present invention relates to improvements in cigarettes or the like and to a novel insert to be used in combination with such articles.

It has long been known that smoking tobacco products produces detrimental effects on the human system. The poisonous constituents of the smoke of tobacco products such as nicotine and tar are deleterious to the internal portion of the human anatomy that is normally contacted by the smoke. It is further generally known that these poisonous constituents are best removed "in situ," that is, removed during the passage of the smoke through the tobacco during smoking. Attempts have heretofore been made to remove or filter these poisonous constituents of smoke during smoking. The effectiveness of the filtration of the smoke during smoking can be attributed in large measure to the amount of moisture in the tobacco. In fact, it has been found that the effectiveness of filtration during smoking is a function of the amount of moisture in the tobacco at the time of smoking. Moisture in the tobacco during smoking produces a "live" filtration, its peculiar effectiveness being ascribed in an analogous manner to catalytic processes because the minute particles that are surrounded by droplets of moisture catalyze or accelerate the absorption of the poisonous ingredients. Prior art methods of saturating absorbent material or sponges and placing them in the cigarette or saturating the filter tip of the cigarette suffer from the disadvantage that at the time of smoking the previously saturated absorbent material has partially or completely dried out so that by the time the smoker places the cigarette to his mouth the effectiveness of the filtration is materially decreased because evaporation has in the meantime occurred subsequent to the time of saturation so that only dry salts or other residues are present during smoking.

It is also known that prior attempts to remove the poisonous ingredients in cigarettes "in situ" have contemplated using a syringe or other injecting apparatus which requires the smoker to individually inject each cigarette with a liquid prior to smoking. It is apparent that this method is cumbersome in that it requires that each individual smoker carry with him a packet containing an injecting apparatus which he must have on his person every time he wishes to smoke.

It is therefore an important object of the present invention to provide an improved cigarette or the like which has within itself means to effect "live" filtration during smoking so as to remove the poisonous constituents of smoke during passage through the same.

It is another object of the present invention to provide an improved cigarette or the like which contains within itself means to produce a moistened zone of filtration prior to smoking the same so as to effect "live" filtration during smoking and which does not require the use of apparatus external to the cigarette.

It is still another object of the present invention to provide an improved cigarette or the like which effects "live" filtration during smoking and which does not differ

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substantially from conventional cigarettes in drawing ease, appearance, flavor, and aroma.

It is a still further object of the present invention to provide an improved cigarette or the like which can be manufactured in quantity mass production operations without substantial increase in cost.

The above and other objects of the present invention will become apparent from the following description taken in conjunction with the accompanying drawing wherein there is shown a preferred embodiment of the same.

In the drawing:

Fig. 1 is a sectional view of the novel insert of the present invention;

Fig. 2 is a view similar to Fig. 1 of a modified form of the novel insert shown in Fig. 1;

Fig. 3 is a side elevation partly in section of a portion of an improved cigarette according to the present invention with the insert of Fig. 1 incorporated therein; and

Fig. 4 is a view showing a portion of an improved cigarette of Fig. 3 in distorted form during the application of slight force thereto.

The novel insert 5 of the present invention is shown in section in Fig. 1 and consists of a hollow body portion 7 and a longitudinally projecting portion 9. The hollow body portion 7 is a thin-walled portion of an insert adapted to be fractured upon the application of slight pressure. The insert may be formed of a variety of materials suitable for the purpose. It can be any organic material such as sugar, egg white, thin-walled plastic material, etc., an example being the fragile, brittle, sugar capable of retaining a liquid of which condiments now on the market are formed. The material of the insert must be brittle and easily fractured upon the application of slight force so as to distribute the liquid contained therein. The insert is preferably placed close to the mouth end of the cigarette so that the cigarette in most cases is extinguished before the lighted end reaches the insert. It is apparent that the insert may be incorporated preferably by the manufacturer in "filter-tip" type cigarettes now prevalent on the market. The liquid 11 contained in the insert may be plain water because it is the moisture permeating the tobacco and producing a moistened zone of "live" filtration which is the principal factor in removing the poisonous ingredients of the smoke. It may be desirable in some cases to incorporate within the insert other liquids to aid in absorbing tars, nicotine and other poisonous ingredients of smoke. Examples of liquids that may be used alone or in combination are: weak solutions of boric acid, tannic acid, tartaric acid, chloroform, alcohol, glycerine, and other liquids that possess the property of absorbing poisonous constituents of smoke. The volumetric capacity of the insert is formed so that the amount of liquid which is incorporated therein is such that it does not saturate the tobacco and the paper surrounding the tobacco, thereby rendering the cigarette of dubious utility. The size of the insert and the amount of liquid depending on its viscosity incorporated therein is adapted to moisten the tobacco along its longitudinal axis without saturating the paper to form thereby a "live" filtration zone of some length which will be effective in removing the poisonous ingredients carried by the smoke in its travel through the filtration zone. It is preferred in order to increase the length of the filtration zone to design the insert so that in fracturing upon the application of slight pressure thereto the weakest portion of its surface lies at the fore and aft extremities of the insert rather than where the force is applied. In this way the liquid escapes from the edges of the insert in a longitudinal direction of the cigarette outward from the vicinity of the insert and thus creates a filtration zone of ample length so as to be most effective in removing the

poisonous ingredients from the smoke in its travel through the cigarette.

The projecting portion 9 integral with the insert 5 as shown adapts the insert for insertion into the end of the cigarette as by grasping the longitudinal projection 9 and inserting it into the cigarette from one end. The insert is able, because of its small diameter and streamlined shape, to be made to slide about the loose particles of tobacco and seat itself within the center of the cross-section of the smoking article at a distance selected at the smoker's option.

The modified form of insert 13 shown in Fig. 2 consists of a thin-walled hollow body portion 15 of the same material as the insert of Fig. 1 containing a liquid 17 of the type previously described. The insert 13 is especially adapted for incorporation in a cigarette during the manufacture thereof although it may be inserted by the smoker in its conventional salable form just prior to smoking the same. In those instances where the insert is incorporated in the cigarette by the manufacturer the cigarette paper is preferably marked at one end so as to identify the end carrying the insert.

In Fig. 3 the insert 5 of Fig. 1 is shown embedded in the tobacco 19 retained by the cigarette paper 21 to form the improved cigarette according to the present invention. The body portion 7 is inserted into one end of the cigarette with the aid of the projecting portion 9. It will be apparent that the presence of projecting portion 9 in the area adjacent to one end of the cigarette will make that end portion less compressible, and thus more firm and resistant to crushing during smoking. The body portion 7 is centrally disposed within the cigarette so as to be free from contact with the cigarette paper. Fig. 4 is a view of the cigarette shown in Fig. 3 during the application of slight force thereto just prior to smoking. The cigarette can easily be shaped back to its normal shape after release of the force. The failure of the thin walls of the body portion 7 results in particles 7' which separate one from another to release the liquid retained within the insert. As may be seen in Fig. 4, after fracture, the projection 9 separates from the particles which comprised the insert, and the projection can be withdrawn if desired. The structure of the body portion 7 is such that its weakest areas are at its ends so that the liquid is primarily released lengthwise of the cigarette due to greater fracture in these areas.

The smoker may grasp the smoking article just prior to the smoking and exert slight pressure between his forefinger and thumb in the vicinity of the novel insert so as to break the same. The liquid retained temporarily by the insert oozes out among the particles and moistens them an ample distance along the longitudinal axis of the cigarette. The amount of liquid present is just enough to moisten the tobacco particles without substantially wetting the paper retaining the tobacco.

In the case of cigarettes, cigarillos, cigars and similar forms of smoking articles to which the present invention pertains, the novel insert containing a liquid which serves to moisten the tobacco and thus form a filtration zone in the cigarette, may be incorporated prior to being placed in conventional package form by the manufacturer of the cigarettes during one of the manufacturing steps. Or the insert of the present invention may itself be packaged in separate containers and marketed as such so that the smoker can then insert into the cigarette, the insert according to his own option. In whatever manner the insert has been embedded in the tobacco within the

cigarette, when the smoker is ready to smoke the same he will then grasp the cigarette, around the insert and apply a slight pressure to the outside of the cigarette. Upon the application of the slight pressure to the cigarette, the insert will be crushed and the liquid retained therein will be released and moisten the tobacco within the vicinity thereof so as to form an effective "live" filtration zone. The "live" filtration zone is characterized by moist tobacco extending from either side of the center of the novel insert in directions parallel to the longitudinal axis of the cigarette, and this ample filtration zone of tobacco moistened either with water or other solutions will serve to pick up and absorb the poisonous ingredients of the tobacco smoke.

While it will be apparent that the preferred embodiment of the invention herein disclosed is well calculated to fulfill the objects above stated, it will be appreciated that the invention is susceptible to modification, variation and change without departing from the proper scope or fair meaning of the claims appended hereto.

What is claimed is:

1. A smoking article comprising a wrapper, tobacco disposed in said wrapper, a rupturable hollow insert embedded in said tobacco, liquid in said insert, said insert being rupturable by the application of slight pressure on said wrapper whereby said liquid is released in the vicinity of said insert to produce a zone of moistened tobacco to thereby improve the filtration effectiveness of the tobacco in said zone as smoke passes therethrough, said insert having an elongated insert-positioning projection, said projection having a length at least equal to the maximum diameter of said insert and disposed intermediate the said insert and the mouth piece end.

2. A tobacco article comprising a wrapper, tobacco in said wrapper forming a conventional shaped cigarette having one end adapted to be lighted and an opposite end, an easily rupturable liquid-containing capsule embedded in said tobacco near said opposite end, said capsule being rupturable by the application of slight finger pressure to said wrapper whereby said liquid is released in the vicinity of said capsule to produce a zone of moistened tobacco to thereby improve the filtration effectiveness of the tobacco in said zone as smoke passes therethrough, said insert having an elongated insert-positioning projection, said projection having a length at least equal to the maximum diameter of said insert and disposed intermediate the said insert and the mouth piece end.

3. The tobacco article defined in claim 2 wherein said insert-positioning projection is integral with said insert and assists in positioning said insert in said article and in reducing the compressibility thereof between the insert and the mouth piece end thereof.

4. The tobacco article as defined in claim 2 wherein said insert-positioning projection is separable from the said insert.

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