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N. J. WATERBURY
SMOKING ARTICLE AND FILTER THEREFOR
CONTAINING VITAMIN A
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3,339,558

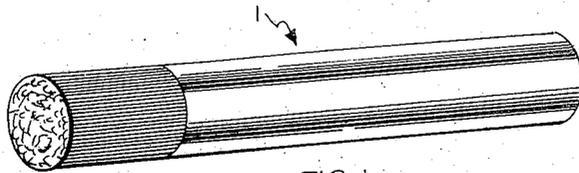


FIG. 1

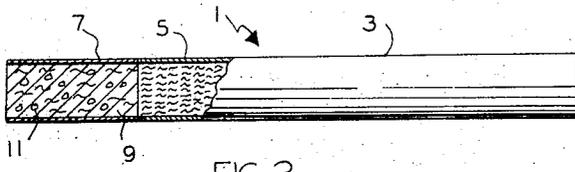


FIG. 2

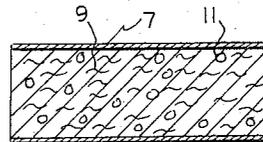


FIG. 3

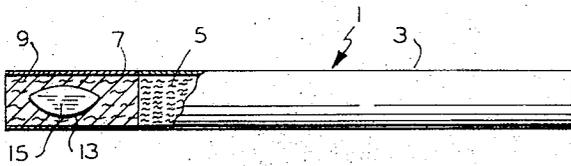


FIG. 4

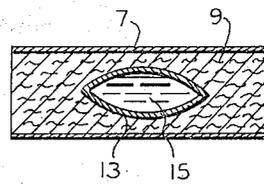


FIG. 5

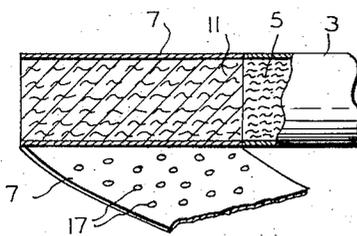


FIG. 6

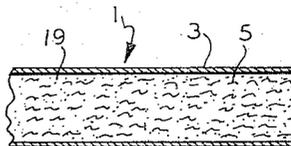


FIG. 7

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**SMOKING ARTICLE AND FILTER THEREFOR
CONTAINING VITAMIN A**

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2 Claims. (Cl. 131-10.1)

ABSTRACT OF THE DISCLOSURE

A method and/or filter cigarette for introducing vitamin A into the mouth and respiratory tract of a smoker which consists of disposing a rupturable capsule in the mouth end of a cigarette having a filtering medium wherein said rupturable capsule will contain a controlled amount of vitamin A in solution, applying pressure to said rupturable capsule to break the same immediately before smoking thereby releasing the vitamin A for exposure to the smoke passing through said filtering medium, so that after the cigarette is lit and suction applied thereto tiny droplets or an aerosol of said vitamin A will be carried in the smoke to the respiratory tract of the smoker.

The present invention relates to smoking articles provided with a filtering means and more particularly to a filter useful in smoking articles. The invention is particularly applicable to filter cigarettes.

In recent years there has been considerable research conducted throughout the world with respect to the relationship between cigarette smoking and various diseases such as lung cancer, throat cancer, emphysema and heart trouble. This research and study has culminated in the recent United States Surgeon-General's Report which indicates a definite correlation between cigarette smoking and lung cancer.

Considerable research has also been conducted in an attempt to isolate and determine the nature of the ingredient in the smoke of cigarettes and other smoking articles which causes these ailments. It has been determined that there are a great number of carcinogenic substances in the smoke of tobacco, the most notable of these being 3,4-benzopyrene.

Attempts to isolate this material and similar carcinogenic materials found in the smoke of tobacco and remove these materials therefrom have not been successful enough to bring a safer cigarette to the public market. These attempts have included various methods of treating the tobacco while growing, and after it has been prepared for use in a smoking article so as to isolate and eliminate the harmful constituents. Such attempts, however, have not been successfully adopted in that such treatment cannot effectively remove a substantial portion of the carcinogenic materials because of the inability of such treating methods to effectively isolate these materials.

Previous attempts to filter out the carcinogenic material from cigarette smoke or the smoke from similar smoking articles have been completely unsuccessful since no adequate filtering means has yet been devised which can effectively eliminate these materials without simultaneously removing, to an appreciable extent, the desirable aroma and taste of the cigarette smoke.

In accordance with the present invention there is provided a filter cigarette which allows for the introduction of vitamin A into the respiratory tract of a smoker in the form of tiny droplets or an aerosol. The vitamin A in the form of an aqueous solution is incorporated in a controlled amount in a rupturable capsule in the mouth end of a filter cigarette so that immediately prior to smoking the capsule may be ruptured by slight pressure exerted by the fingers of the smoker whereby when the cigarette

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is lit and suction applied thereto by the smoker, the smoke passing through the filtering medium carries the vitamin A in the form of tiny droplets or an aerosol into the respiratory tract of the smoker. Since vitamin A is one of the known materials for the maintenance of good health (especially with regard to the epithelial tissue), the present invention provides another mode of introducing into individuals this valuable material.

It is therefore, a principal object of the present invention to provide a method and/or filter cigarette for introducing vitamin A into the mouth and respiratory tract of the smoker.

It is a further object of the present invention to provide a cigarette or similar smoking article and a filtering means therefor which contain vitamin A.

A still further embodiment of the present invention comprises the incorporation of vitamin A as a dispersion of fine droplets or vapor within the filtering medium of a filter cigarette.

Yet a further embodiment of the present invention comprises the employment of a rupturable capsule within the filter or tobacco of the cigarette which rupturable capsule releases vitamin A upon slight pressure exerted by the fingers of the smoker.

Still further objects and advantages of the smoking article of the present invention, and filter therefor, will become more apparent from the following more detailed description and the accompanying drawings wherein:

FIG. 1 is a perspective view of a smoking article, i.e., a filter cigarette, in accordance with the present invention;

FIG. 2 is a cross-sectional view of a filter cigarette in accordance with one embodiment of the present invention;

FIG. 3 is an enlarged view showing in cross section the filtering element of the filter cigarette of FIG. 2;

FIG. 4 is a cross-sectional view of a filter cigarette illustrating a further embodiment of the present invention;

FIG. 5 is an enlarged view showing in cross section the filtering element of the filter cigarette of FIG. 4;

FIG. 6 is a cross-sectional view of a filter cigarette showing a further embodiment of the present invention; and

FIG. 7 is a further cross-sectional view showing a cigarette illustrating a further embodiment of the present invention.

In all of the figures, like numerals represent like elements.

FIG. 1 represents a filter cigarette 1 embodying a filtering device in accordance with the present invention. While this figure illustrates a filter cigarette, it is important to note that the present invention is not limited thereto but is suitably applicable to the filtering of the smoke of cigars, pipes and similar smoking articles.

In addition, while this figure illustrates a filter cigarette having a filtering element, in accordance with the present invention, attached thereto, it is to be understood that the present invention is suitably applicable to the incorporation of the filtering element into a holder or similar attachment for use in the filtering of smoke of a cigarette or similar smoking article.

The filter cigarette 1 is shown in cross section in FIG. 2. This figure illustrates the now-familiar filter-tip cigarette including a burnable paper wrapping or casing 3, a filling or smoke-producing material, e.g., tobacco 5, and a filter tip at the mouth end comprising a filter casing or tipping paper 7 and the filtering material 9. The filtering material 9 can comprise any of the standard materials now employed in the filtering of cigarettes and similar smoking articles. Thus the filtering material can comprise wadded cotton or rolled gauze, rolled, crimped cellulose

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sheet material, a matrix of charcoal or glass fibers, or a synthetic resinous material capable of entrapping the del-
 eterious solid particles in the tobacco smoke. Dispersed
 within the filtering material 9 are tiny droplets 11 of
 vitamin A which material is uniformly dispersed through-
 out the filtering medium 9. In this manner, when the
 smoke produced by the burning of the tobacco 5 within
 the burnable paper wrapping or casing 3 passes through
 the filter medium 9, such smoke will pick up the tiny
 droplets or an aerosol of vitamin A and carry them out
 of the filter of the cigarette to the smoker. The vitamin A
 will therefore pass with the smoke in the form of tiny
 droplets or an aerosol into the respiratory tract of the
 smoker.

Thus, there has been provided a new and unobvious
 method and/or filter cigarette for introducing vitamin
 A into the mouth and respiratory tract of a smoker with
 a view of providing another mode of introducing this
 valuable material into the respiratory tract of an in-
 dividual.

In FIG. 3 the filtering element of the present invention
 is shown in enlarged cross section. The droplets or an
 aerosol of vitamin A 11, dispersed within the filter med-
 ium 9, are of such a size that they are easily entrained
 by the smoke of the burning tobacco passing through the
 filtering element. While such a filtering element is shown
 in FIG. 2 as forming the mouth portion of a conventional
 filter cigarette, it should be noted that the filtering element
 may be advantageously employed as a separate filtering
 element in a holder for a cigarette, cigar or similar smok-
 ing article. In addition, the filtering element can be ad-
 vantageously employed as a separate filtering element
 located in the body portion of a pipe. In all instances the
 smoke produced from the burning tobacco passing through
 the filtering element entrains the droplets of vitamin A
 11, dispersed within the filter medium 9, such that the
 vitamin A is carried to the smoker along with the smoke.

An additional embodiment of the present invention is
 illustrated in FIG. 4 which again shows a filtering device
 attached as the mouth portion of a conventional filter
 cigarette. The vitamin A within the filter medium 9 of
 the filtering element is not dispersed as tiny droplets with-
 in the filter medium 9 but is encapsulated in liquid or
 vapor form within a rupturable capsule 13 located within
 the filter medium 9. The rupturable capsule 13 contain-
 ing the vitamin A is located within the filtering element
 in such a manner that the capsule can be easily ruptured
 upon the application of slight pressure. Such pressure can
 be easily supplied by the smoker prior to smoking the ciga-
 rette. The rupturable capsule 13 can be any organic mate-
 rial such as sugar, egg white, or a thin-walled plastic mate-
 rial which can be easily ruptured by the application of
 slight pressure. Exemplary materials include, for exam-
 ple, gelatin, polyethylene plastic, natural or synthetic rub-
 ber, or any other suitable material capable of rupturing
 by the application of slight pressure. The vitamin A 15
 is maintained within the rupturable capsule 13 either in
 the liquid or vapor form, the liquid form being preferred.
 The vitamin A may also occur as the pure material or
 may be employed as an aqueous solution located within
 the rupturable capsule 13. The term solution as used
 herein means solutions which are clear, show no disper-
 sion visible to the naked eye, and remain so indefinitely.
 This type of vitamin A aqueous solution e.g. oil-water
 solution of vitamin A is fully illustrated in U.S. Patent
 2,417,299 issued Mar. 11, 1947. When an aqueous solu-
 tion of the vitamin A is employed, the water which is re-
 leased upon the rupturing of the capsule 13 additionally
 aids in moisturizing the smoke which is produced from
 the burning tobacco. In addition to vitamin A, it is im-
 portant to note that various other additional ingredients
 can be incorporated within the rupturable capsule to add
 further desirable properties to the smoke produced. Thus,
 for example, additional health-benefitting vitamins as well
 as flavorants such as menthol or chlorophyll can be ad-

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vantageously maintained within the rupturable capsule 13
 along with the vitamin A of the present invention.

FIG. 5 shows the filtering element of FIG. 4 in en-
 larged cross section. Here again, while the filtering ele-
 ment is shown in FIG. 4 as the mouth portion of a con-
 ventional cigarette, it should be known that such filtering
 element can be advantageously employed also as an inde-
 pendent filtering element to be located within a holder
 for a cigarette or cigar or can be employed as an inde-
 pendent filtering element located within the body of a
 pipe or similar tobacco-smoking article.

In addition, while the rupturable capsule or container
 13 has been shown as a single large rupturable container
 or capsule within the filtering medium of FIGS. 4 and 5,
 the vitamin A and other materials can be conveniently
 encapsulated within a number of smaller rupturable cap-
 sules or containers located within the filtering medium.
 In addition, such a rupturable container or capsule con-
 taining the vitamin A can be conveniently located within
 the tobacco portion of a cigarette or cigar should it be de-
 sired to obtain the benefits of the entrainment of the vita-
 min A within the smoke produced from the burning to-
 bacco without the aid of a filtering medium. When the
 rupturable container or capsule 13 shown in FIGS. 4
 and 5 is ruptured by slight pressure exerted by the fingers
 of the smoker, the liquid or vaporous vitamin A is re-
 leased and dispersed throughout the filtering medium 9.
 In this way, the smoke produced from the burning of the
 tobacco of the cigarette or other tobacco-smoking article
 entrains the dispersed vitamin A as the smoke passes
 through the filtering element. In this manner the vitamin
 A is taken along with the smoke into the lungs and other
 organs of the smoker.

An alternative embodiment of the present invention is
 illustrated in FIG. 6. In this embodiment, small capsules
 17 of vitamin A are located on the inner face of the
 filter casing or tipping paper 7. The wall material of the
 capsules 17 can be prepared from the same material as
 set forth in FIGS. 4 and 5 for the rupturable container
 or capsule 13. These tiny capsules 17 containing vitamin
 A again are rupturable and the vitamin A is released upon
 slight pressure exerted by the smoker. When the vitamin
 A located within the small capsules 17 is released, it dis-
 perses throughout the filtering medium 11 in such a man-
 ner that it is easily entrained by the smoke from the burn-
 ing tobacco which passes through the filtering element.

A still further embodiment of the present invention is
 shown in FIG. 7. Here a smoking article such as a ciga-
 rette or cigar contains a fine dispersion 19 of vitamin A
 throughout the tobacco medium 5 of the cigarette or
 cigar. In this manner vitamin A can be entrained in the
 smoke produced from the burning tobacco in the same
 manner as it could be entrained when employed as a dis-
 persion within the filtering medium of a filter cigarette.
 This embodiment, therefore, allows for the obtaining of
 the beneficial results associated with the intake of vitamin
 A without the necessity of the employment of a filter
 to be used with a cigarette, cigar or other similar smoking
 article. While the present invention has been described
 primarily with respect to the incorporation of vitamin A
 as a dispersion, or encapsulated, within a filtering element
 to be employed with a tobacco-smoking article or as a
 dispersion, or encapsulated, within the tobacco medium
 itself of such a tobacco-smoking article, it is noted at this
 time that a treatment of growing tobacco or cut tobacco
 prior to the manufacturing of the cigarettes or other
 smoking article with vitamin A will also add beneficial
 effects to the cigarettes or other smoking articles thus
 produced.

While the present invention has been described pri-
 marily with respect to certain preferred embodiments,
 it is to be understood that the invention is in no way to
 be deemed as limited thereto, but should be construed
 as broadly as all or any equivalents thereof.

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Having adequately described the present invention, what is desired to be protected by Letters Patent is:

1. A method for introducing vitamin A into the mouth and respiratory tract of a smoker which comprises locating a rupturable capsule in the mouth end of a cigarette having a tobacco charge and a filter medium downstream from said tobacco charge, said rupturable capsule being in contact with said filter medium and containing a controlled amount of vitamin A in an aqueous solution, applying pressure to said rupturable capsule to break the capsule immediately before smoking thereby releasing the vitamin A solution for exposure to the smoke passing through the said filter medium so that after the cigarette is lit and suction applied thereto, tiny droplets or an aerosol of said vitamin A will be carried in the smoke to the respiratory tract of the smoker.

2. A filter cigarette for introducing vitamin A into the mouth and respiratory tract of a smoker comprising a tubular wrapper having a tobacco charge at one end thereof, a fibrous filtering medium within the wrapper and at the mouth end of the said cigarette downstream from the tobacco, said filtering medium having disposed within the mass thereof a rupturable capsule containing vitamin A in an aqueous solution, said capsule being rupturable upon the application of finger pressure immediately before smoking, thereby releasing the vitamin A solution for exposure to the smoke passing through the fil-

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tering medium so that after the cigarette is lit and suction applied thereto, tiny droplets or an aerosol of said vitamin A will be carried in the smoke to the respiratory tract of the smoker.

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