

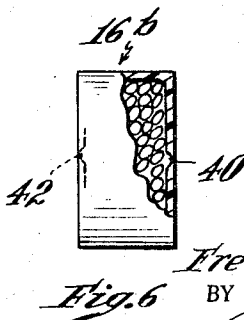
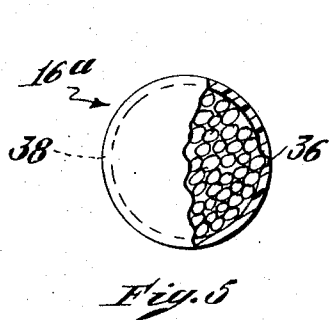
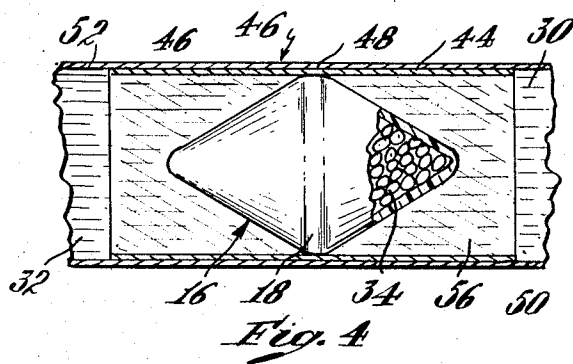
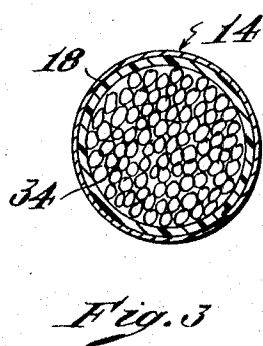
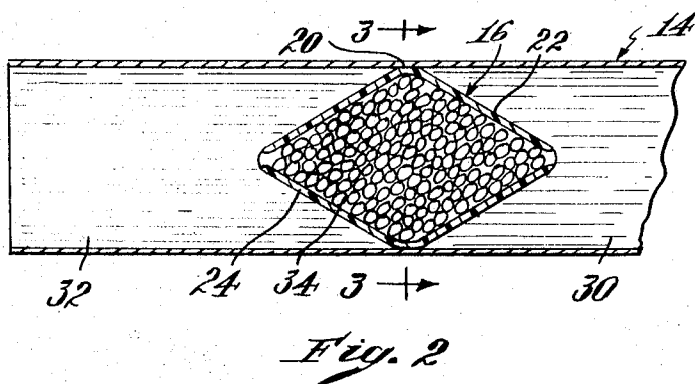
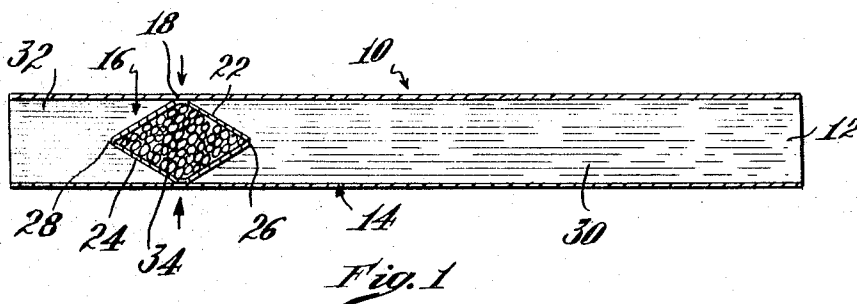
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FILTER CIGARETTE

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FILTER CIGARETTE

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This invention relates to cigarettes and, in particular, to means for removing or rendering harmless deleterious components in the smoke.

A great many kinds of filters have been devised for the foregoing purposes and for the most part they have proved ineffective and distasteful. Failure to achieve effective filtering has been due in part to the fact that much of the smoke passes through and around the filtering material without actual contact therewith, and that such filtering material as has been devised thus far loses its power to make the harmful components innocuous between the time the cigarette is manufactured and used due to absorption of air and/or moisture which reduces its potential.

The principal objects of this invention are to provide a filter element which will restrict the passage of smoke through it when smoking to a relatively narrow passage substantially along the central axis of the cigarette; which will prevent the passage of smoke around it; and which, until the cigarette is to be used, will hermetically confine a preactivated material capable of rendering harmless, noxious components of the smoke. Other objects are to provide a filter element which is inexpensive to manufacture; can be incorporated in the cigarette easily during manufacture; and is non-inflammable, tasteless and odorless.

As herein illustrated, the filter is incorporated in the body of the cigarette adjacent one end and comprises an impervious element having a peripheral portion which fits the interior of the wrapper and is joined thereto circumferentially, and a diametrical portion which divides the cigarette into front and rear portions, the diametrical portion being adapted to be ruptured centrally thereof by squeezing the cigarette at the location of the filter to provide a passage from the front portion to the rear portion through the filter, and said filter containing an activated material, of a kind to render the deleterious portions of the smoke innocuous, which is unexposed until the filter is ruptured. More specifically, the filter comprises a flexible capsule having a peripheral portion corresponding to the inside diameter of the wrapper which is joined to the wrapper, and spaced walls extending crosswise of the cigarette which divide it into front and rear portions and which provide a chamber intermediate the front and rear portions within which is hermetically sealed a granulated material capable of rendering harmful components of the smoke innocuous. The walls embody substantially at the center of each a weakened portion adapted to be fractured by squeezing the cigarette at the location of the capsule to provide a passage from the front portion through the capsule and the granulated material therein into the rear portion. The capsule is preferably in the form of a pair of cones joined base-to-base, disposed in the cigarette with the peripheral portion formed by the bases joined to the inner surface of the wrapper, and with the apices situated substantially on the longitudinal axis of the cigarette. Optionally, a sphere or a right cylinder may be employed. The capsule is comprised of gelatin however it is to be understood that it may be comprised of any other flexible, non-inflammable, tasteless, odorless material. The granular substance sealed within the capsule is comprised of activated carbon particles and is hermetically sealed in the capsule in an inert gas. Optionally, the filter capsule may be incorporated in a filter section comprised of a tube within which the capsule is mounted,

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adapted to be wrapped with the front and rear portions of the tobacco or to be secured at its opposite ends to tobacco-filled front and rear portions.

The invention will now be described in greater detail with reference to the accompanying drawings wherein:

FIG. 1 is a diametrical section longitudinally of the cigarette, provided with the improved filter element which forms the subject matter of this invention;

FIG. 2 is an enlarged fragmentary diametrical section longitudinally of the cigarette, showing the filter element after it is ruptured so as to provide a narrow passage from the front portion of the cigarette to the rear portion through the capsule;

FIG. 3 is a diametrical section taken on the line 3-3 of FIG. 2;

FIG. 4 shows an elevation of a capsule broken away in part mounted in a tube by means of which it may be incorporated in a cigarette;

FIG. 5 is an elevation partly in section of a spherical capsule; and

FIG. 6 is an elevation partly in section of a cylindrical capsule.

Referring to FIG. 1, there is shown a cigarette 10 comprising an elongate body of tobacco 12 enveloped in a wrapper 14. Intermediate the ends of the cigarette and nearer one end than the other, there is incorporated a filter element 16 having a peripheral portion 18, corresponding to the inside diameter of the wrapper, which is joined to the wrapper peripherally by suitable means such as adhesive 20, and forwardly and rearwardly projecting ends 22 and 24 which, in the preferred form of the invention, are conical, tapering to apices 26 and 28 which lie substantially on the longitudinal axis of the cigarette. Disposed in this position the filter element divides the cigarette into a front portion 30 which is normally consumed and a rear portion 32 which constitutes a mouth piece, and by reason of the fact that it contains unburned tobacco restores flavor to the smoke after passing through the filter as will be explained hereinafter.

The capsule 16 is comprised of gelatin and its front and rear end walls 22 and 24 are flexible without being frangible. At the apices 26 and 28 however the walls are weakened by substantial reduction in thickness or made frangible in such a way that, by squeezing the cigarette at the location of the capsule as indicated by the arrows in FIG. 1, the capsule may be distorted and, by such distortion, rupture the weakened portions at the apices of the walls thereby providing a continuous narrow passage at the longitudinal axis of the cigarette from the front portion through the capsule into the rear portion. An alternative is to provide holes at the ends of the capsule and to fill these holes with a material that can be ejected by squeezing of the capsule to clear the holes thus providing an unobstructed passage through the capsule.

Prior to use, that is, from the time that the cigarette is manufactured to actual smoking, the capsule provides a hermetically sealed chamber within which there is packed a granular material 34 which will remove or render harmless deleterious components of smoke. In the preferred form the granular material is activated charcoal and is packed in the capsule in an inert gas so that until the capsule is ruptured, the activated charcoal cannot absorb or take up air and/or water vapor thus maintaining its potential until actual use. When the capsule is ruptured by squeezing, smoke is permitted to pass only through the relatively narrow passage provided by the openings at the ends of the capsule since the capsule itself still constitutes a wall, separating the front and rear portions of the cigarette. The joining of the peripheral portion of the capsule to the inner side of the wrapper prevents smoke from passing around it.

A spherical or cylindrical capsule 16a, 16b, such as shown in FIGS. 5 and 6, may be substituted for that shown in FIGS. 1 and 2, each provided with coaxially aligned weakened portions 36, 38 (FIG. 5) and 40, 42 (FIG. 6) and each filled with an activated material of suitable kind.

The filter element optionally may be incorporated in the cigarette by first fixing it in a sleeve 44, such as shown in FIG. 4, so as to provide a filter section 46. The filter section 46 as thus made up is comprised of the gelatin filter element 16 secured within the sleeve 44 by means of adhesive 48, attaching its peripheral portion 18 to the inside of the sleeve. The peripheral portion 18 may be attached by heat-sealing instead of adhesive when the capsule is comprised of gelatin. The filter section 46 may be manufactured independently of the cigarette itself and then wrapped together with the tobacco to form a completed cigarette with a front combustible portion 50 at one end and a rear mouth piece 52 at the opposite end.

While the capsule is preferably comprised of a gelatin which may be readily molded to shape and have incorporated in it a granular material for filtering purposes, any other material may be used which will afford the flexibility required to withstand the distortion and the fracturing of the weakened portions without crushing or separating from the inner wall of the wrapper and which is also non-inflammable, tasteless and odorless.

In the form shown in FIGS. 1 and 2, the tobacco in the tobacco in the front and rear portions is packed about the front and rear ends of the filter element. In the form shown in FIG. 4, the portions of the sleeve 44 at the front and rear ends of the capsule may be filled with a material other than tobacco such as, for example, the commonly used acetate filter so as to add to the filtration efficiency and so as to hold the portions of the sleeve surrounding the conical portions of the capsule firm and round and to enable securing the front and rear portions 50 and 52 thereto.

The capsule incorporated in the sleeve, as illustrated in FIG. 4, may be used as a disposable filter insert for a cigarette holder or the capsule could be used alone in a holder containing an appropriately shaped compartment for receiving it.

The chief advantage of the filter disclosed herein is that it provides protection for activated filter material, preventing loss of its effectiveness during normal shelf life thus enabling use of activatable filter materials which heretofore could not be used.

It should be understood that the present disclosure is for the purpose of illustration only and that this invention includes all modifications and equivalents which fall within the scope of the appended claims.

I claim:

1. In a cigarette comprising an elongate body of tobacco and a wrapper enveloping the body, a flexible

capsule interposed in the body adjacent one end, said capsule having a continuous wall in circumferential engagement with the interior surface of the wrapper, and containing a granulated material activated to render the deleterious components of the smoke harmless hermetically packed in the capsule, and means embodied in opposed wall portions of the capsule rupturable by distortion of the capsule to permit smoke to flow through the capsule containing the granulated material.

2. A cigarette according to claim 1, wherein the capsule has an annular portion, the peripheral surface of which engages the inner side of the wrapper, and oppositely extending conical portions, the apices of which embody said rupturable means.

3. A cigarette according to claim 1, wherein the capsule embodies a cylindrical wall in circumferential engagement with the interior of the wrapper, and spaced parallel diametrical walls, said diametrical walls containing said rupturable means.

4. A cigarette according to claim 1, wherein the capsule is spherical and corresponds in diameter to the inside diameter of the wrapper.

5. A cigarette according to claim 1, wherein the granular material is comprised of carbon particles.

6. A cigarette according to claim 1, wherein the capsule is comprised of gelatin.

7. The combination with a device containing tobacco for smoking of the latter, said device constituting the means through which the products of combustion of the tobacco are drawn during smoking; a filter element adapted to be supported in the device in the path of flow of the products of combustion, said filter element comprising a capsule containing a granular material activated to render the deleterious components of the products of combustion harmless hermetically packed therein, and means embodied in opposed wall portions of the capsule rupturable by distortion of the capsule to permit the products of combustion to flow through it and the granular material contained therein.

References Cited by the Examiner

UNITED STATES PATENTS

2,755,206	7/1956	Statia	131—10
2,808,057	10/1956	Jaksch	131—10
2,863,461	12/1958	Frost	131—10
2,893,399	7/1959	Jacoby	131—10
3,066,681	12/1962	Cohn	131—10
3,217,715	11/1965	Berger et al.	131—10

OTHER REFERENCES

Puchert, German application No. 1,077,127, pub. March 3, 1963.

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