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(54) **CAPSULED ADSORBENT FLAVORED FILTER**

FILTER MIT EINGEKAPSELTEM, MIT GESCHMACKSSTOFF VERSEHENEM ADSORBENS
FILTRE COMPORTANT DES PARTICULES ADSORBANTES AROMATISEES ENCAPSULEES

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- **SCOTT, Robert, G.**
Midlothian, VA 23113 (US)
- **KEEN, Billy, J.**
Bumpass, VA 23024 (US)

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(74) Representative: **Marlow, Nicholas Simon**
Reddie & Grose
16 Theobalds Road
London
WC1X 8PL (GB)

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(73) Proprietor: **Philip Morris Products S.A.**
2000 Neuchâtel (CH)

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(72) Inventors:

- **JUPE, Richard**
Richmond, VA 23233 (US)

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Description

Background of the Invention

[0001] The present invention relates to a cigarette comprising a tobacco rod and an adjoining filter, and more particularly to a filter that includes a capsule packed with flavored adsorbent.

[0002] Cigarettes with filters are old in the art, and filters that include adsorbents also are well known (see e.g. DE 19527471 A1 or US-A-3251 365). However, when adsorbents are used in cigarette filter constructions it is important that they be presented in a fully packed condition so as to avoid or substantially reduce channeling of mainstream tobacco smoke in and around the adsorbent. Moreover, although flavors have been added to mainstream tobacco smoke it is important to maintain such flavors as fresh as possible for extended shelf life of the cigarette.

Summary of the Invention

[0003] Accordingly, one of the objects of the present invention is a cigarette filter containing adsorbent particles in a fully packed condition so as to avoid channeling of mainstream tobacco smoke in and around the adsorbent particles.

[0004] Another object of the present invention is a cigarette filter containing flavored adsorbent particles wherein the amount of flavor is precise.

[0005] Still another object of the present invention is a cigarette filter containing fully packed flavored adsorbent particles within a capsule to preserve freshness of the flavored particles.

[0006] In accordance with the present invention, a cigarette comprises a filter and an adjoining tobacco rod. The filter includes a capsule having a first end wall with a surrounding side wall secured thereto. Adsorbent spherical carbon particles are packed into the enclosure of the capsule, and flavorant is placed on the particles. A second end wall caps-off the side wall, and a plurality of perforations are located in the end walls of the capsule. During smoking of the cigarette, mainstream tobacco passes into and through the capsule to thereby modify the characteristics of the smoke.

[0007] In one embodiment of the present invention, the adsorbent spherical carbon particles comprise a combination of two different sizes. Also, in the preferred embodiment of the present invention, the filter has a plug-space-plug configuration with the capsule in the central space. The plugs on opposite ends of the capsule may each comprise cellulose acetate tow.

Brief Description of the Drawings

[0008] Novel features and advantages of the present invention in addition to those mentioned above will become apparent to persons of ordinary skill in the art from

a reading of the following detailed description in conjunction with the accompanying drawings wherein similar referenced characters refer to similar parts and in which:

Figure 1 is a side elevational view of a cigarette comprising a tobacco rod and a filter that includes a capsuled adsorbent and flavorant, according to the present invention, with portions of the filter broken away to show interior details;

Figure 2 is a perspective view of the capsuled adsorbent and flavorant of the cigarette filter shown in Figure 1;

Figure 3 is an end elevational view of the capsuled adsorbent and flavorant shown in Figures 1 and 2; and

Figure 4 is an elevational view of the capsuled adsorbent with flavorant being applied to the adsorbent within the capsule prior to capping the capsule, according to the present invention.

Detailed Description of the Invention

[0009] Referring in more particularity to the drawings, Figure 1 illustrates a cigarette 10 comprising a tobacco rod 12 and a filter 14 adjoining the tobacco rod. Filter 14 has a plug-space-plug configuration and the central space provides a compartment for a capsule 16 containing a flavored adsorbent material, as explained more fully below.

[0010] Plugs 18 and 20 each of cellulose acetate tow are located on opposite ends of the capsule 16. Tipping paper 22 is wrapped around the filter 14 and joins the filter to the tobacco rod. Perforations 40 may be provided in the tipping paper for the introduction of air which dilutes the mainstream tobacco smoke following through the filter.

[0011] Capsule 16 comprises an impervious surrounding side wall 24 and a first and second end wall 26, 28. Adsorbent spherical carbon particles 30, 32 are fully packed into the enclosure of the capsule, and a flavorant 34 is applied to the carbon particles. Both end walls 26 and 28 include a plurality of perforations 36 which enable mainstream smoke to pass through the capsule.

[0012] The capsule 16 is produced by initially forming the surrounding side wall 24 with one end wall 26 attached thereto. Carbon particles 28, 30 each having a different size are fully packed into the capsule and a precise amount of flavorant 34 is delivered onto the particles by an applicator device 38. The opposite end of the surrounding side wall 24 is then capped-off by end wall 28.

[0013] By encapsulating the adsorbent spherical carbon particles 30, 32 in this particular manner, a capsule fully packed with particles is presented and such fully packed condition avoids channeling of mainstream tobacco smoke in and around the particles. Vibration may be applied to obtain a fully packed capsule. Hence, the smoke is subjected to the fully effect of the adsorbent particles and the flavorant applied thereto. Moreover, the

effectiveness of the encapsulated adsorbent particles 28, 30 is maintained over long periods thereby significantly increasing the shelf life of cigarette filters made in this manner. Overall the capsule 16 enables more exact filing of adsorbent particles 28, 30 and more control of flavor 34 per cigarette.

Claims

1. A capsule (16) for placement in a cigarette filter (14) comprising an enclosure having a first end wall (26) with a surrounding side wall (24) secured thereto, adsorbent carbon particles (30, 32) fully packed into the enclosure to avoid channelling of mainstream tobacco smoke in and around the adsorbent particles, flavorant (34) on the particles, a second end wall (28) capping-off the side wall, and a plurality of perforations (36) in the end walls whereby when the capsule is placed in a cigarette filter tobacco smoke passes into and through the capsule to thereby modify the characteristics of the smoke
2. A capsule (16) according to claim 1 wherein the carbon particles (30, 32) are spherical.
3. A capsule (16) according to claim 1 or 2 wherein the carbon particles (30, 32) comprise a combination of particles of two different sizes.
4. A cigarette (10) comprising a filter (14) and a tobacco rod (12), the filter including a capsule (16) having a first end wall (26) with a surrounding side wall (24) secured thereto, adsorbent carbon particles (30, 32) fully packed into the capsule (16) to avoid channelling of mainstream tobacco smoke in and around the adsorbent particles, a flavorant (34) on the particles, a second end wall (28) capping-off the side wall, and a plurality of perforations (36) in the end walls whereby during smoking of the cigarette tobacco smoke passes into and through the capsule (16) to thereby modify the characteristics of the smoke.
5. A cigarette (10) according to claim 4 wherein the carbon particles (30, 32) are spherical.
6. A cigarette (10) according to claim 5 wherein the carbon particles (30, 32) comprise a combination of particles of two different sizes.
7. A cigarette as in claim 4 wherein the filter has a plug-space-plug configuration with the capsule in the space and wherein the plugs on opposite ends of the capsule each comprise cellulose acetate tow.
8. A method of producing a capsule for placement in a cigarette filter according to claim 1 to 3 comprising the steps of forming an enclosure having a first end

wall with a surrounding side wall secured thereto, packing adsorbent carbon particles into the enclosure, applying flavorant onto the carbon particles, capping-off the side wall with a second end wall, and providing perforations in the end walls whereby when the capsule is placed in a cigarette filter tobacco smoke passes into and through the capsule to thereby modify the characteristics of the smoke.

9. A method as in claim 8 wherein the carbon particles are spherical.
10. A method as in claim 9 wherein the spherical carbon particles comprise a combination of particles of two different sizes.
11. A method as in claim 8 including the step of placing the capsule in a space within a cigarette filter.
12. A method as in claim 11 including the step of placing cellulose acetate plugs at opposite ends of the capsule.

Patentansprüche

1. Kapsel (16) zum Platzieren in einen Zigarettenfilter (14), umfassend eine Hülle mit einer ersten Stirnwand (26) mit einer daran befestigten umgebenden Seitenwand (24), adsorbierende Kohlenstoffpartikel (30, 32), die vollständig in die Hülle gepackt sind, um das Leiten von Hauptstrom-Tabakrauch in und um die adsorbierenden Partikel zu vermeiden, Geschmacksstoff (34) auf den Partikeln, eine zweite Stirnwand (28), die die Seitenwand abschließt und eine Vielzahl von Perforationen (36) in den Stirnwänden, wodurch, wenn die Kapsel in einen Zigarettenfilter platziert wird, Tabakrauch in und durch die Kapsel strömt, um **dadurch** die Eigenschaften des Rauchs zu verändern.
2. Kapsel (16) nach Anspruch 1, wobei die Kohlenstoffpartikel (30, 32) kugelförmig sind.
3. Kapsel (16) nach Anspruch 1 oder 2, wobei die Kohlenstoffpartikel (30, 32) eine Kombination von Partikeln zweier verschiedener Größen umfassen.
4. Zigarette (10), umfassend einen Filter (14) und einen Tabakstab (12), wobei der Filter eine Kapsel (16) mit einer ersten Stirnwand (26) mit einer daran befestigten umgebenden Seitenwand (24) umfasst, adsorbierende Kohlenstoffpartikel (30, 32), die vollständig in die Kapsel (16) gepackt sind, um das Leiten von Hauptstrom-Tabakrauch in und um die adsorbierenden Partikel zu vermeiden, einen Geschmacksstoff (34) auf den Partikeln, eine zweite Stirnwand (28), die die Seitenwand abschließt und eine Vielzahl von

Perforationen (36) in den Stirnwänden, wodurch während des Rauchens der Zigarette Tabakrauch in und durch die Kapsel (16) strömt, um **dadurch** die Eigenschaften des Rauchs zu verändern.

5. Zigarette (10) nach Anspruch 4, wobei die Kohlenstoffpartikel (30, 32) kugelförmig sind.
6. Zigarette (10) nach Anspruch 5, wobei die Kohlenstoffpartikel (30, 32) eine Kombination von Partikeln zweier verschiedener Größen umfassen.
7. Zigarette nach Anspruch 4, wobei der Filter eine Ausbildung als Pfropfen-Zwischenraum-Pfropfen mit der Kapsel im Zwischenraum hat und wobei die Pfropfen an gegenüberliegenden Enden der Kapsel jeweils Zelluloseacetat-Werg umfassen.
8. Verfahren zum Herstellen einer Kapsel zum Platzieren in einen Zigarettenfilter nach einem der Ansprüche 1 bis 3, umfassend die Schritte des Bildens einer Hülle mit einer ersten Stirnwand mit einer daran befestigten umgebenden Seitenwand, des Packens von adsorbierenden Kohlenstoffpartikeln in die Hülle, des Aufbringens von Geschmacksstoff auf die Kohlenstoffpartikel, des Abschießens der Seitenwand mit einer zweiten Stirnwand und des Vorsehens von Perforationen in den Stirnwänden, wodurch, wenn die Kapsel in einen Zigarettenfilter platziert wird, Tabakrauch in und durch die Kapsel strömt, um **dadurch** die Eigenschaften des Rauchs zu verändern.
9. Verfahren nach Anspruch 8, wobei die Kohlenstoffpartikel kugelförmig sind.
10. Verfahren nach Anspruch 9, wobei die kugelförmigen Kohlenstoffpartikel eine Kombination von Partikeln zweier verschiedener Größen umfassen.
11. Verfahren nach Anspruch 8, umfassend den Schritt des Platzierens der Kapsel in einen Zwischenraum in einem Zigarettenfilter.
12. Verfahren nach Anspruch 11, umfassend den Schritt des Platzierens von Zelluloseacetat-Pfropfen an gegenüberliegenden Enden der Kapsel.

Revendications

1. Capsule (16) destinée à être placée dans un filtre de cigarette (14) comprenant une enceinte comportant une première paroi d'extrémité (26) à laquelle est fixée une paroi latérale périphérique (24), des particules de charbon adsorbantes (30, 32) entassées de façon dense dans l'enceinte afin d'empêcher que la fumée principale du tabac ne dévie dans les par-

ticules adsorbantes et autour de celles-ci, un aromatisant (34) sur les particules, une seconde paroi d'extrémité (28) scellant la paroi latérale, et une pluralité de perforations (36) dans les parois d'extrémité de telle sorte que lorsque la capsule est placée dans un filtre à cigarette la fumée du tabac passe dans la capsule et la traverse pour ainsi modifier les caractéristiques de la fumée.

2. Capsule (16) selon la revendication 1, dans laquelle les particules de charbon (30, 32) sont sphériques.
3. Capsule (16) selon la revendication 1 ou 2, dans laquelle les particules de charbon (30, 32) comprennent une combinaison de particules de deux tailles différentes.
4. Cigarette (10) comprenant un filtre (14) et un bâtonnet de tabac (12), le filtre comportant une capsule (16) ayant une première paroi d'extrémité (26) à laquelle est fixée une paroi latérale périphérique (24), des particules de charbon adsorbantes (30, 32) entassées de façon dense dans l'enceinte afin d'empêcher que la fumée principale du tabac ne dévie dans les particules adsorbantes et autour de celles-ci, un aromatisant (34) sur les particules, une seconde paroi d'extrémité (28) scellant la paroi latérale, et une pluralité de perforations (36) dans les parois d'extrémité de telle sorte que lorsque la capsule est placée dans un filtre à cigarette la fumée du tabac passe dans la capsule (16) et la traverse pour ainsi modifier les caractéristiques de la fumée.
5. Cigarette (10) selon la revendication 4, dans laquelle les particules de charbon (30, 32) sont sphériques.
6. Capsule (10) selon la revendication 5, dans laquelle les particules de charbon (30, 32) comprennent une combinaison de particules de deux tailles différentes.
7. Cigarette selon la revendication 4, dans laquelle le filtre a une configuration bout filtre-espace-bout filtre avec la capsule placée dans l'espace et dans laquelle les bouts filtre aux extrémités opposées de la capsule comprennent chacun de la mèche d'acétate de cellulose.
8. Procédé de production d'une capsule destinée à être placée dans un filtre de cigarette selon l'une quelconque des revendications 1 à 3 comprenant les étapes de formation d'une enceinte ayant une première paroi d'extrémité à laquelle est fixée une paroi latérale périphérique, le bourrage de particules de charbon adsorbantes dans l'enceinte, l'application d'un aromatisant sur les particules de charbon, le scellement de la paroi latérale avec une seconde paroi d'extrémité, et la réalisation de perforations dans les

parois d'extrémité de telle sorte que lorsque la capsule est placée dans un filtre à cigarette la fumée du tabac passe dans la capsule et la traverse pour ainsi modifier les caractéristiques de la fumée.

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9. Procédé selon la revendication 8, dans laquelle les particules de charbon sont sphériques.

10. Procédé selon la revendication 9, dans laquelle les particules de charbon sphériques comprennent une combinaison de particules de deux tailles différentes.

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11. Procédé selon la revendication 8, comportant l'étape de placement de la capsule dans un espace dans un filtre de cigarette.

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12. Procédé selon la revendication 11, comportant l'étape de placement de bouts filtre d'acétate de cellulose à des extrémités opposées de la capsule.

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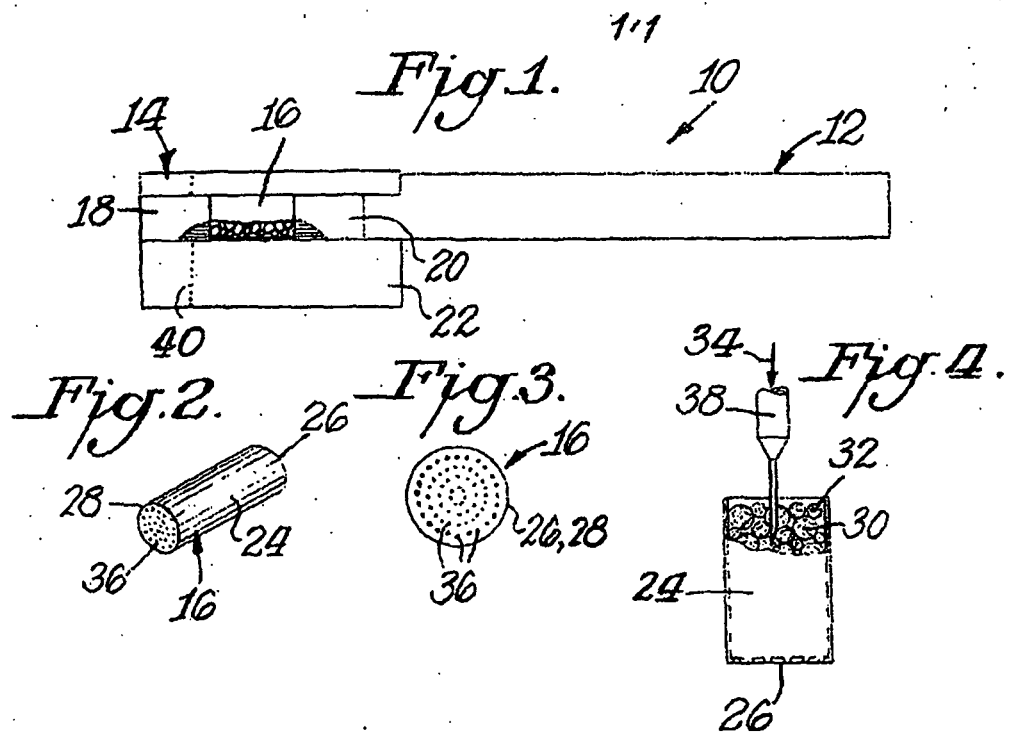
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REFERENCES CITED IN THE DESCRIPTION

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