



US 20050199251A1

(19) **United States**

(12) **Patent Application Publication**
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(10) **Pub. No.: US 2005/0199251 A1**

(43) **Pub. Date: Sep. 15, 2005**

(54) **METHOD FOR PRODUCING FILTER CIGARETTES**

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(21) Appl. No.: **10/472,279**

(22) PCT Filed: **Aug. 8, 2002**

(86) PCT No.: **PCT/IB02/03179**

Publication Classification

(51) **Int. Cl.⁷ A24C 1/32**

(52) **U.S. Cl. 131/94; 131/88**

(57) **ABSTRACT**

A method for the manufacture of filter cigarettes which in longitudinal direction comprise at least two filter portions of different material with the following method steps:

endless lines are generated of at least a first and second material and are provided with a wrap

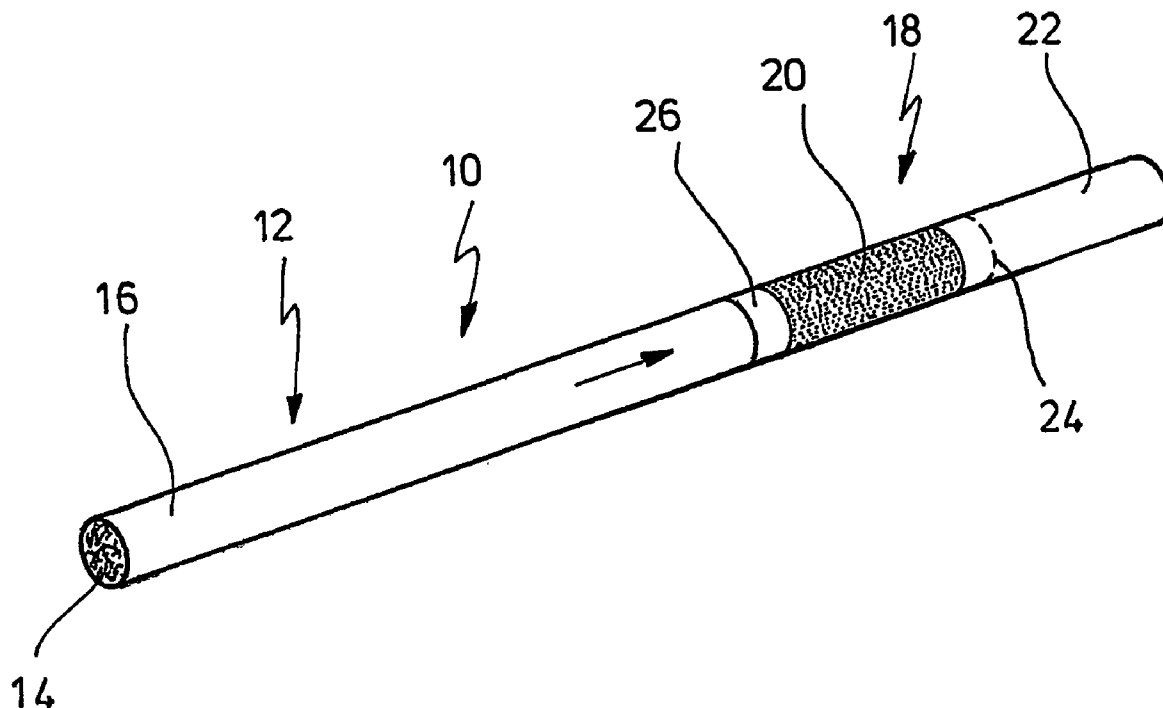
first and second sections are cut from the endless lines of different filter material, the sections having a predetermined length

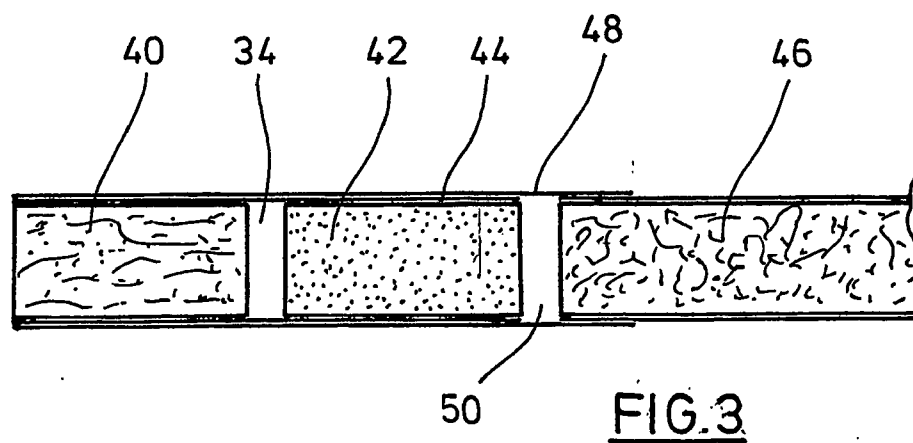
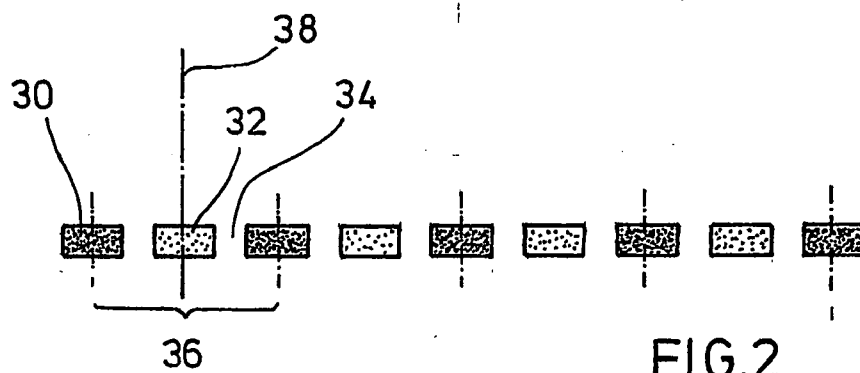
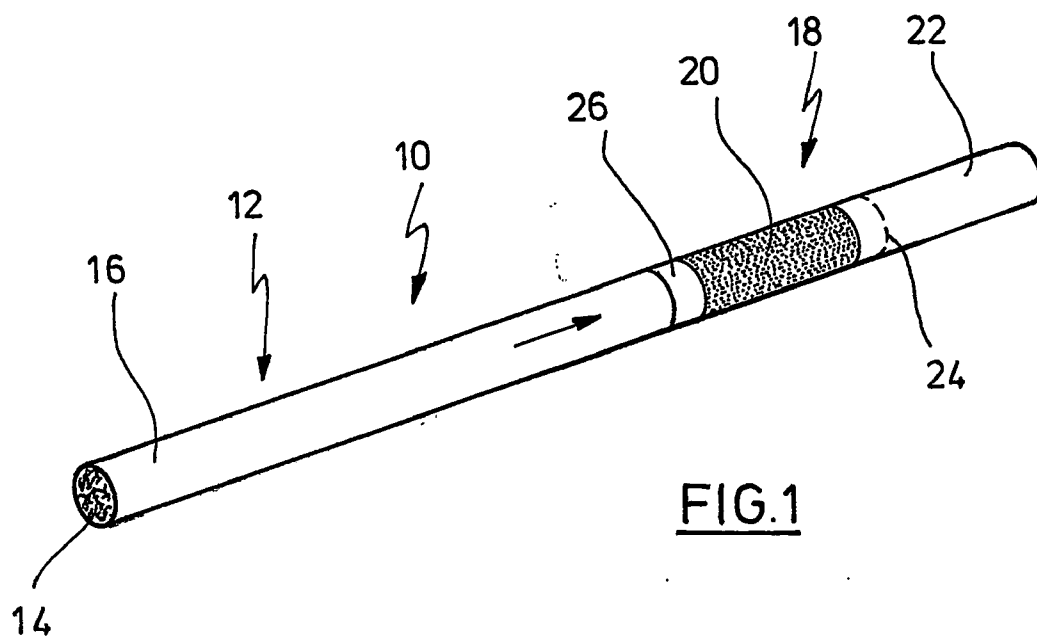
the sections are alternatively filed with a predetermined spacing from each other and are continuously wrapped in order to achieve a further endless line

the further endless line is divided into double filter sections having end portions and a center portion, the center portion being formed of a first filter section of a first material and the end portions are formed by the half of the section of the second filter material

the double filter sections are located between aligned tobacco rods and connected thereto by an end wrap

the filter sections are cut in the center.





METHOD FOR PRODUCING FILTER CIGARETTES

[0001] The invention refers to a method for the manufacture of filter cigarettes according to patent claim 1 or 2.

[0002] From DE 36 35 958 or U.S. Pat. No. 4,807,647 a filter cigarette has become known wherein the cigarette filter is comprised of two air-permeable components or cores aligned in longitudinal direction and of a common wrap. The first component is to generate a relatively large pressure drop in the longitudinal direction of the filter. In radial direction, however, the filter is to be substantially air-impermeable through its whole cross section. The second component is to generate in longitudinal direction of the filter a relatively small pressure drop while in radial direction it is also air-permeable. The components may immediately join each other or have a space therebetween. This space is to achieve a ventilation in the filter, defining a chamber formed by the space between the filter components. In this area the wrap is perforated in order to achieve an improved distribution of the tobacco smoke through the total cross section in the filter area under reduction of contents of condensate and nicotine without affecting the cigarette taste. The structure of the known cigarette is such that one filter component has its own wrap, and a common wrap is provided for the second component as well and for the tobacco rod. The connection of the filter to the tobacco rod takes place by means of a further wrap which overlaps the tobacco rod at the associated end a certain partial length. The manufacture of such filter cigarettes is relatively expensive.

[0003] The object of the invention is to provide a method for the manufacture of filter cigarettes having substantially the same components as a known filter cigarette which method can be carried out easily and effectively. Furthermore, the filter structure is to be varied in different aspects.

[0004] This object is attained by the features of patent claims 1 and 2.

[0005] In the method according to the invention an endless line or rope is manufactured from filter material. The filter material may be for example acetate or carcoal. First and second sections of the predetermined length are made from the endless lines. The length of both sections is for example or preferably the same. From the first and second sections, a further endless line is formed, wherein the sections alternate. The arrangement of the sections is such that they have a predetermined distance from each other, for example 3 to 6 cm. The line is continuously wrapped by a suitable wrap. From this endless line, double filter sections are generated. Each double filter section includes three portions, namely a first section of half length in the end portions and a second section in total length in the center of the double filter section.

[0006] In case of double filter arrangement, in particular of those including carcoal, it is usual to provide the filter portion of for example acetate or paper filter at the end of the complete filter. This is above all for aesthetic reasons. Therefore, the arrangement of the sections in the double filter section is such that the end portions of the half length consists of that filter material which is to form the end of the mouth piece. The double filter sections then are located between aligned two tobacco rods and are connected thereto. Thereafter, the double filter sections are separated in the

center, preferably by cutting operation. Usually, this is carried out by a corresponding drum of a known cigarette manufacturing machine.

[0007] By means of the method according to the invention a space between filter portions can be generated in a simple manner in order to form ventilation chambers of desired length.

[0008] In the solution of patent claim 2 during the manufacture of the third endless line the filter sections are arranged immediately one after the other without a space. With the connection of the tobacco rod through the double filter portion a chamber is formed by providing a respective space between the double filter portion in the tobacco rod. A geometrically defined arrangement of perforations is not necessary.

[0009] An embodiment example to carry out the method according to the invention is subsequently described along accompanying drawings.

[0010] FIG. 1 shows diagrammatically a filter cigarette according to the prior art.

[0011] FIG. 2 shows a method step according to the invention.

[0012] FIG. 3 shows a cross section through a filter cigarette manufactured according to the method of the invention.

[0013] The filter cigarette of FIG. 1 is comprised of a tobacco rod 12 and a filter portion 18. The tobacco rod consists of a tobacco portion 14 which is wrapped by a paper wrap 16. The filter portion 18 consists of a first filter section 20 and a second filter section 22 which are of different materials and have a spacing which is indicated by the dotted line 24. Both filter sections 20, 22 are interconnected by a common wrap indicated at 26 and connected to the tobacco rod 12.

[0014] In the method according to the invention endless lines of a filter material for a first and a second filter as shown in FIG. 1 are generated (not shown). The filter material is for example an acetate or a paper filter or on the other hand carcoal. Both filter materials are generally known. The endless lines are provided with a suitable wrap, e.g. of paper.

[0015] First and second sections of a predetermined, preferably of equal length are generated from the endless lines. This can be carried out in stepped operations in that for example at first sections of a length of 132 mm are generated which are then parted to lengths of 44 mm which in turn are parted to sections of 22 mm length. The two different sections are subsequently arranged to a series of alternating first and second sections. By this a further endless line is generated. The different sections are designated with 30 and 32 in FIG. 2. As shown in FIG. 2, the sections 30, 32 can be filed pairwise. Between the sections gaps of for example 3 to 6 mm are left. These gaps or spacings are designated with 34. This endless line during its manufacture is provided with a wrap (not shown). This endless line is also shown in FIG. 2 is divided into double filter portions 36. Each double filter portion is comprised of an intermediate section 32 and end sections which are formed by the half length of section 32. The wrapped double filter portions 36 then are positioned between two aligned tobacco rods, in

particular on a known drum of a manufacturing machine (not shown). After the connection with the tobacco rods the double filter portions **36** are separated in the center as indicated by the dash-dotted line **38** in **FIG. 2**. By this, filter portions **40, 42** of 11 mm length are achieved (the sections **30, 32** as already described have a length of 22 mm). The spacing **34** remained the same. The arrangement of the filter portions **40, 42** with the common wrap **44** is then attached to a tobacco rod **46** by means of a further wrap **48** which partially overlaps the end of the tobacco rod as already known per se.

[0016] In **FIG. 3**, there is shown that a further spacing or gap **50** can be provided between the filter portion **42** and the tobacco rod **46**. The spacing is either formed alternatively to spacing **34** or additionally to this. Both spaces or gaps **34, 50** form a ventilation chamber for the smoke from the tobacco rod **46**, whereby the contents of condensate and nicotine is reduced. The wrap **48** or the wrap **44**, respectively, can be perforated at desired portions. The perforation of wraps is also known.

[0017] The method described can be carried out with known apparatuses or machines for the manufacture of filter cigarettes. A particular expense for this is not necessary.

1. A method for the manufacture of filter cigarettes which in longitudinal direction comprise at least two filter portions of different material with the following method steps:

endless lines are generated of at least a first and second material and are provided with a wrap

first and second sections are cut from the endless lines of different filter material, the sections having a predetermined length

the sections are alternatively filed with a predetermined spacing from each other and are continuously wrapped in order to achieve a further endless line

the further endless line is divided into double filter sections having end portions and a center portion, the

center portion being formed of a first filter section of a first material and the end portions are formed by the half of the section of the second filter material

the double filter sections are located between aligned tobacco rods and connected thereto by an end wrap

the filter sections are cut in the center.

2. The method for the manufacture of filter cigarettes having at least two filter portions of different filter material, with the following method steps:

endless lines are manufactured from the first and second filter material, each having a wrap

first and second sections of different material of predetermined length are generated from the first and second endless lines

the sections are alternatively filed and continuously wrapped to form a further endless line

the further endless line is divided into double filter sections having end portions and a center portion, the center portion being formed by the total length of a first section and the end portions are formed by the half of the second sections

the double filter sections are located between aligned tobacco rods forming a space with respect to the associated tobacco rod and are connected to the tobacco rod by a final wrap

the double filter sections are cut in the center thereof.

3. The method of claim 1 or 2, wherein the spacing between the filter portions or the tobacco rod and the associated filter portion, respectively, is between 3 and 6 mm.

4. The method of one of the claims 1 to 3, wherein the wrap is perforated at desired portions.

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