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(71) Applicant: **JT International SA**
1211 Geneva 26 (CH)

(72) Inventor: **Ashram, Reyad**
1204 Geneva (CH)

(74) Representative: **Haley, Stephen**
Gill Jennings & Every LLP
The Broadgate Tower
20 Primrose Street
London EC2A 2ES (GB)

(54) **Filter cigarette with variable ventilation**

(57) A filter cigarette (1) comprises a rod (2) of smokable material, and a mouth piece (3) attached to the rod (2), the mouth piece (3)comprising an element rotatable with respect to the rest of the filter cigarette about the longitudinal axis thereof such that a user can vary the ventilation of the filter cigarette (1) and a fixed element that is fixed relative to the rod. There is also a strength indicator comprising a first scale extending circumferentially around the periphery of the rotatable element, and a second scale extending circumferentially around the fixed element, wherein each scale comprises a plurality of individual markers which can be longitudinally aligned by rotation of the rotatable element with respect to the rod (2).

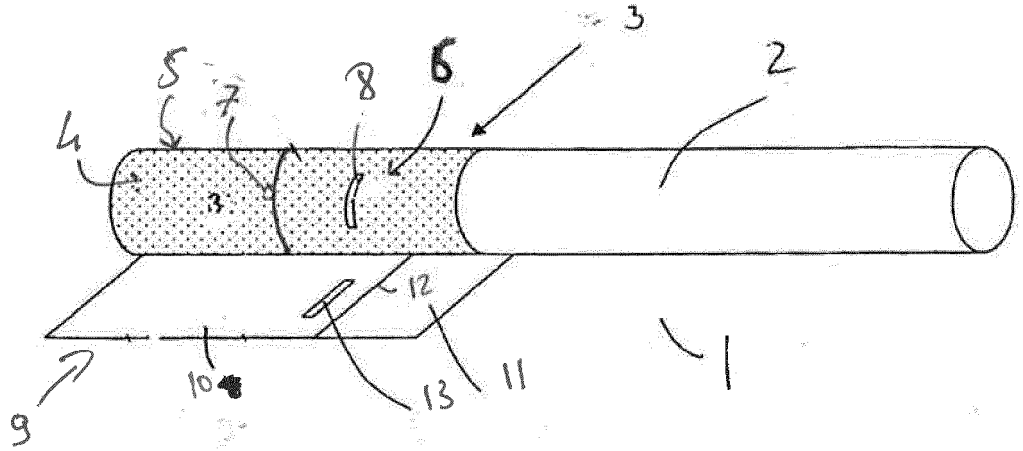

Figure 1

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Description

[0001] The present invention relates to a filter cigarette with variable ventilation.

[0002] Filter cigarettes are well known and generally comprise a cylindrical rod of tobacco surrounded by a paper wrapper and a cylindrical filter adjacent thereto and axially aligned therewith. It is usual for the tobacco rod and filter to be joined by a band of tipping paper that encases the entire length of the filter and an adjacent portion of the wrapped tobacco rod. It is also well known for the tipping paper to be provided with one or more perforations at a location on the filter in order to introduce air to the smoke produced from the lit tobacco rod. It is also known to provide means for varying the mixing the air passing though the perforations to enable a user to vary the ratio of air to smoke and thereby vary the strength of the cigarette, with a larger proportion of smoke to air increasing the strength of the cigarette.

[0003] An example of such a cigarette is disclosed in US-A-4570649. In this document there is disclosed a conventional cylindrical tobacco rod attached to a filter plug. The filter plug is wrapped with a plug wrap and tipping paper, at least one of which is impermeable to air. In this prior art configuration the plug wrap is divided into three bands, one at the mouth end of the cigarette, a central band, and a further band adjacent to the rod. The mouth and rod end bands are fixed to the filter and the central band is arranged to be rotatable around the longitudinal axis of the cigarette. The tipping paper is positioned over the plug wrap and arranged in two bands. The first of these bands extends from the mouth end to a position overlying the rod end of the plug wrap and is attached to the central band of the plug wrap for rotation therewith. This first band of tipping paper has an opening therein overlying the rod end band of the plug wrap. The rod end band of the plug wrap has at least one aperture formed therein such that rotation of the first band of the tipping paper rotates to enable positioning of the perforation therein with the perforation in the plug wrap to vary the amount of air that may be drawn in during use, thereby varying the mixing of smoke from the burning tobacco rod with external air to control the strength of the cigarette. Such cigarettes have appeal to consumers, but can have problems in that the consumer, whilst being able to vary the strength of the cigarette, does not have a clear indication of how the mixture of air and smoke has been adjusted and therefore what strength has been selected for this cigarette during smoking. Attempts have been made to overcome such problems by providing scale and cursor arrangements to provide an indication of adjustment amount to a user, as disclosed in WO-A-2011/116976, for example, where a cursor is provided on either the fixed or rotatable part of the cigarette, and a scale is provided on the other of the fixed and rotatable parts, with the respective movement between the cursor and scale providing an indication of the level of ventilation provided to the filter of the cigarette. However, such configurations still have disadvantages in that they do not provide a simple and readily understandable indication of selected cigarette strength and still provide a fair degree of uncertainty to the user of the cigarette strength when making an adjustment.

[0004] According to the present invention there is provided a filter cigarette comprising: a rod of smokable material; a mouth piece attached to the rod, the mouth piece comprising an element rotatable with respect to the rest of the filter cigarette about the longitudinal axis thereof such that a user can vary the ventilation of the filter cigarette and a fixed element that is fixed relative to the rod; and a strength indicator comprising: a first scale extending circumferentially around the periphery of the rotatable element, and a second scale extending circumferentially around the fixed element, wherein each scale comprises a plurality of individual markers which can be longitudinally aligned by rotation of the rotatable element with respect to the rod.

[0005] The two scales may comprise of identical markers being symmetrical about a separation line between the rotatable element and the rest of the cigarette in only one position of the rotatable element such that they indicate a defined level of strength in the cigarette. The individual markers may be symmetrical about the longitudinal axis of the cigarette and/or the individual markers of the first scale may be symmetrical to the individual markers of the second scale about a point of symmetry located in a circumferential line placed halfway between the first and second scales. At least some of the individual markers may be triangular in shape. The indication of the level in strength may be provided by at least one of the area of the matching markers, the contrast or colour of the matching markers, or the provision of identical shapes of matching markers.

[0006] One set of identical markers may be positioned to indicate a rotational position providing a minimum strength of cigarette and one set may be positioned to provide an indication of a rotational position providing a maximum strength for the cigarette.

[0007] With the arrangement of the present invention it is possible for the user to know clearly and simply what level of strength of a cigarette has been selected by rotation of the rotatable component of the filter. Furthermore, with the arrangement of the present invention is it possible for the user to know this strength selection regardless of the direction of rotation of strength selection component in a simple and effective manner.

[0008] One example of the present invention will now be described with reference to the accompanying drawings, in which:

Figure 1 is a side-view of components of a cigarette according to the present invention during its assembly;

Figure 2 is a side-view of a cigarette constructed in accordance with the present invention;

Figure 3 is a series of end cross-sectional view of the filter and ventilation components of the present invention in positions selecting different cigarette strengths; and

Figures 4 and 5 show examples of different indicators with different positions for the indicators of the present invention at different selected cigarette strengths.

[0009] Referring to Figure 1, a filter cigarette 1 comprises a tobacco rod 2 and filter component 3. The filter component 3 is configured to allow adjustment of the filter ventilation by a user to adjust the taste strength of the cigarette. The filter component 3 comprises a plug of filter material such as acetate having a plug wrap 4 extending over its outer surface. The filter component 3 is divided into two filter segments 5, 6 by a circumferential transverse cut 7 perpendicular to the longitudinal axis of the cigarette 1. The cut 7 is only partial throughout the diameter of the filter plug 4 so as to leave a central connecting member of filter material between the two segments 5, 6. This connecting member advantageously acts as axis of rotation for the segments relative to each other to allow variation of the filter ventilation level as explained below. At least one perforation 8 is formed into the plug wrap 4 in the segment 5 of the filter component 3 adjoining the tobacco rod 2. This perforation 8 allows air to be drawn in though the plug wrap 4 and into the core of the filter component 3. To assemble the filter component 3 to the tobacco rod 2 a tipping paper 9 is provided and wrapped over the plug wrap 4 and filter segment 5, 6. The tipping paper 9 is comprised of two bands 10, 11 separated by a cut line 12. A first band 10 is glued to mouth end filter segment 5 of the cigarette 1 and extends over the cut 7 between the two filter segments 5, 6 and partially over the second filter segment 6 and the perforation 5 without being glued to the second segment 6. This first tipping band 10 comprises a slot 13 which is positioned so that it can be aligned over the perforation 8 in the second filter segment 6. A second tipping band 11 is glued on the remaining part of the second filter segment 6 and the tobacco rod 2 to attach the filter component 3 to the tobacco rod 2.

[0010] Figure 2 shows the filter cigarette of Figure 1 when assembled with the slot 13 of first band 10 of tipping paper 9 aligned over perforation 8. Such configuration of the filter component 3 and tipping paper 9 makes the mouth end filter segment 5 capable of rotation around the central axis of the cigarette 1 relative to the second filter segment 6 connected to the cigarette 1. This varies the respective positions of the perforation 8 in the second filter segment 6 and the slot 13 in the first tipping band 10 as shown in Figure 3 in order to adjust the filter component ventilation, hence the strength of the cigarette 1.

[0011] Figure 3 shows a cross-sectional view of the cigarette 1 through the location of the perforation 8 and slot 13. From this it can be seen that relative rotation of mouth end filter segment 5 with respect to second filter segment 5 in either direction can adjust the relative positions of the slot 13 and perforation 8 to control the amount of air that can be drawn through the combination of the slot 13 and perforation 8 and into the filter component 3 when the cigarette 1 is being smoked.

[0012] In the example of Figures 1 to 3 the filter component 3 and tipping 9 comprise only one perforation 8 and slot 13 respectively. However, it will be noted that multiple perforations and slots could likewise be contemplated in the filter component and tipping respectively without affecting the filter function.

[0013] The present invention provides an indicator means to help consumer have a direct visual indication of the strength of the cigarette that is being set through variation of the ventilation level of the filter component as described above.

[0014] Referring to Figure 4, a first example of an indicator employed with the present invention is shown in two different positions. In Figure 4A the filter cigarette 1 of the present invention has a first scale comprising a set of indicator components or markers 20, 21, 22 formed on rod connecting band 11 of the tipping paper 9. Formed on the mouth end band 10 of the tipping paper 9 is a second scale comprising a set of indicator components or markers 23, 24, 25. The two scales are thereby separated by the transverse cut line 12. It will be appreciated that the first set of indicator components or markers 20,21,22 could be formed on the mouth end band 10 with the second set of indicators or markers 23,24,25 formed on the rod connecting band 11 adjacent thereto with similar operation of the invention.

[0015] It will be noted that there are a number of aspects of the indicator configuration, both in terms of the shape and location, that may be provided and which provide additional benefits in terms of improved accuracy of indication to a user and the ease of use of the cigarette as a whole. These include aspects such as the individual markers of the first scale being symmetrical to the individual markers of the second scale about a point of symmetry circumferential line placed halfway between the first and second scales. It will be noted from the figures that the level of strength in this example is represented by the areas of the matching markers when they are aligned. Of course, alignment can be indicated solely by the identical shape of the matching markers as an alternative, or in combination with this. It may also be that the contrast or colour of the matching markers (not shown in the figures) can be used to indicate strength level.

[0016] The relative positions of the first and second set of indicators 20 to 25 are set so that they can provide, in a first position, as shown in Figure 4A, an indication of minimum strength of the cigarette when a maximum amount of air is allowed through the slot 13 and perforation 8 by the alignment of the two indicator components 21 and 24 of the same shape. Rotation of mouth end filter segment 5 and tipping band 10 with respect to the rest of the cigarette 1 moves the alignment of the slot 13 and

perforation 8 to reduce the amount of air allowed to pass there through and increase the strength when such rotation is in either the clockwise or counter clockwise direction with respect to the axis of the cigarette 1. This moves the relative positions of second indicator components 20 to 25 such that two indicator components (either 20 and 25 or 22 and 23) of the same shape are aligned to indicate that an adjustment has occurred to place the cigarette at maximum strength by blocking passage of air through the slot 13 and perforations 8.

[0017] Figure 5 shows a further example of the present invention in which intermediate indicator components 26 are provided. Operation of the example of Figure 5 is the same as that of Figure 4 with the addition of the ability of the cigarette to indicate accurately intermediate positions between maximum and minimum strength for the cigarette 1 by alignment of corresponding indicator components of the same shape.

Claims

1. A filter cigarette comprising:

a rod of smokable material;
a mouth piece attached to the rod, the mouth piece comprising an element rotatable with respect to the rest of the filter cigarette about the longitudinal axis thereof such that a user can vary the ventilation of the filter cigarette and a fixed element that is fixed relative to the rod; and
a strength indicator comprising:

a first scale extending circumferentially around the periphery of the rotatable element, and a second scale extending circumferentially around the fixed element, wherein each scale comprises a plurality of individual markers which can be longitudinally aligned by rotation of the rotatable element with respect to the rod.

2. A filter cigarette according to claim 1, wherein the two scales comprise identical markers being symmetrical about a separation line between the rotatable element and the rest of the cigarette in only one position of the rotatable element such that they indicate a defined level of strength of the cigarette.

3. A filter cigarette according to claim 1 or 2 wherein the individual markers in each of the scales are symmetrical about the longitudinal axis of the cigarette.

4. A filter cigarette according to claim 1 to 3 wherein the individual markers of the first scale are symmetrical to the individual markers of the second scale, about a point of symmetry located on a circumferential line placed half way between the first and second scales.

5. A filter cigarette according to claim 1 wherein at least some of the individual markers are triangular in shape.

6. A filter cigarette according to claim 2 wherein the indication of the level of strength is represented by at least one of the following features:

a. The area of the matching markers
b. The contrast or colour of the matching markers
c. An identical shape of the matching markers.

7. A filter cigarette according to claim 1 or claim 2 wherein one set of identical markers are positioned to indicate a rotational position providing a minimum strength of the cigarette, and at least one set of identical markers are positioned to provide an indication of a rotational position providing a maximum strength of the cigarette.

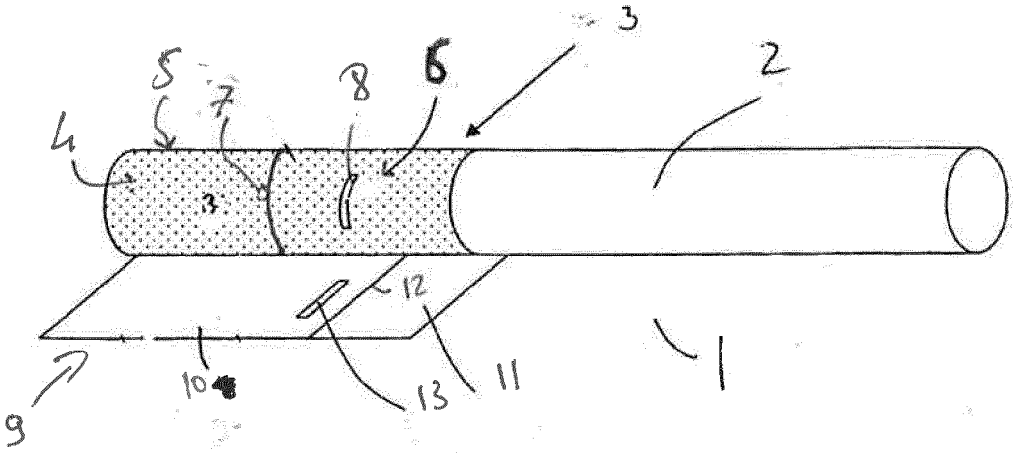


Figure 1

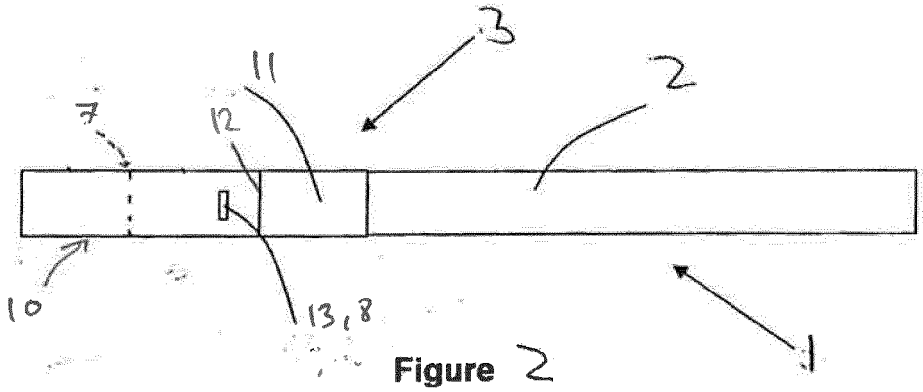


Figure 2

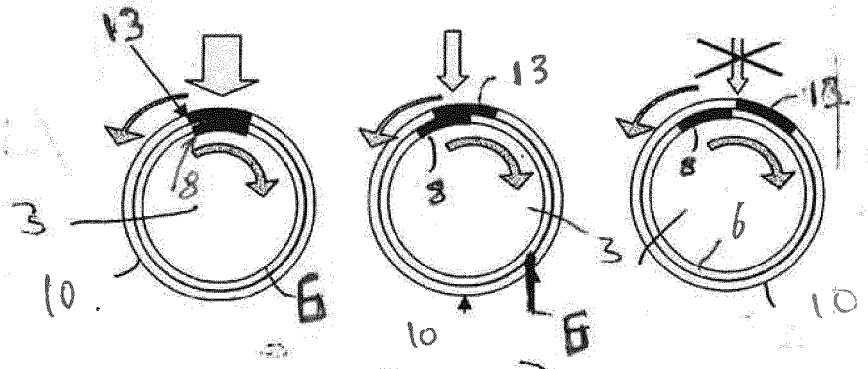
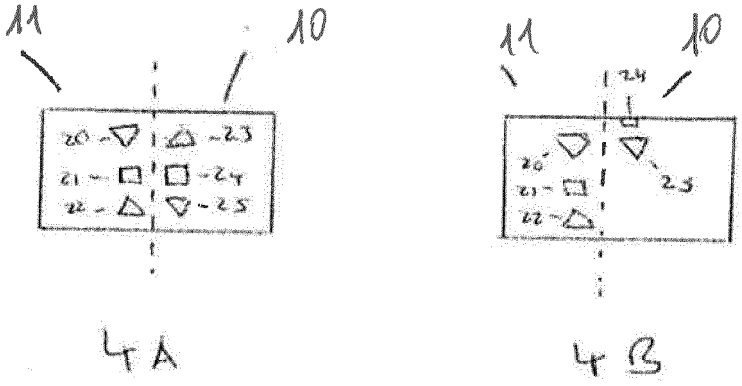
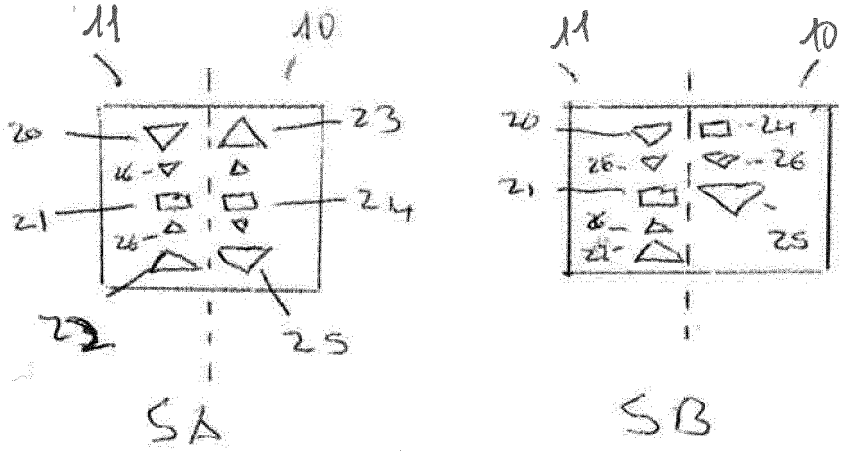


Figure 3



4A 4B

Fig 4.



5A 5B

Fig 5.

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EUROPEAN SEARCH REPORT

Application Number
EP 13 15 9012

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X Y	US 4 600 027 A (HOUCK WILLIE G [US] ET AL) 15 July 1986 (1986-07-15) * column 4, line 21 - line 38; figures 1-3 * * column 7, line 54 - line 60; figure 18 *	1 2-7	INV. A24D3/04
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	25 July 2013	Marzano Monterosso

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

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