

**FILTER FOR SMOKING ARTICLE
AND SMOKING ARTICLE INCORPORATING IT**

FIELD OF THE INVENTION

5 This invention relates to a filter for a smoking article such as a cigarette, cigarillo or cigar (hereinafter referred to for brevity as a cigarette), as well as to a cigarette incorporating it.

BACKGROUND OF THE INVENTION

10 The problem faced by the invention is to provide within a given filter the possibility of varying the characteristics of the filter by a mechanical adjustment of its parts.

SUMMARY OF THE INVENTION

15 For this purpose the invention provides a filter for or in a cigarette which comprises at least two filter portions of different characteristics, which are linked by a wrap which allows a change in the relative longitudinal positions of the two portions, 20 the two portions being constructed such that the total filter characteristics to which smoke passing through the filter is subjected are different in different relative positions of the two portions. One of the two relative positions is preferably of axially abutting 25 contact between ends of the portions.

In a preferred embodiment the two portions each

have a plurality of coaxial regions, the regions in respective portions having differing characteristics, such that when the two portions are in one relative position smoke flow will be through one set of regions at least one member of which set is in one of the portions and another member in the other of the portions, but when the two portions are in the other relative position smoke flow will be preferentially through a second set of regions at least one member of which set is in one of the portions and another member in the other of the portions. The regions in one portion of the filter may be arranged such that an outer annular region has a lower flow resistance than an inner core region, while in another portion an inner core region has a lower flow of resistance than an outer annular region. One or more of the regions may be totally impermeable to smoke or may be a void. The regions both within each portion and as between portions may vary as to one or more characteristics such as, for example, smoke permeability; chemical activity; physical materials; content of additives such as perfumes; ventilation.

The portions are joined together by a wrap which is collapsible while maintaining its integrity, so as to allow the portions to alter their relative position, and preferably to be brought into axial

abutment; there may be a guide sleeve to guide relative movement of the portions and to assist comparative rigidity of the filter when the portions are in a spaced-apart condition. The filter portions may move relative to each other by arranging that a wrap of one portion may slide over the other portion. Preferably, however, the wrap will be integral and, in the position of nearer approach of the two portions, in a bellows formation.

10

DESCRIPTION OF THE DRAWINGS:

Particular embodiments of the invention will now be described with reference to the accompanying drawings, wherein:

15

Figure 1 is a diametrical section through a filter end of a cigarette with the filter being in one condition; and

Figure 2 is a similar section with the filter in a different condition.

DESCRIPTION OF SPECIFIC EMBODIMENTS

20

In Figure 1 a tobacco rod 1 is surrounded by paper 2, joined by overwrap 3 to a filter structure 4. The filter structure has two axially aligned filter portions 5 and 6 which are respectively bonded at 7 and 8 to a plug wrap 9.

25

In the case of the filter portion 5 bonding 7 is via an intermediate sleeve 10 of paper or thin card

which extends beyond the end of the portion 5 nearer to the portion 6.

The bonding 8 associated with the filter portion 6 does not extend all along the length of that portion so there is formed outside the periphery of that portion but inside the wrap 9 a gap 11.

The plug wrap is of a material e.g. plastics, card, tipping paper or stiff plug wrap (porous or non-porous) which can retain its integrity while allowing the two filter portions 5,6 to move relative to each other. In Figure 1 they are shown at a mutually distant relationship; in Figure 2 filter portion 6 has been moved towards filter portion 5 so that their adjacent ends abut, and so that the sleeve 10 has acted as a guide sleeve for that motion while entering into the gap 11 outside the portion 6, and so that also the plug wrap 9 has concertinaed into a bellows formation at 12.

The filter portions are different from each other.

In this embodiment both of them have an inner cylindrical core region, 13,14 respectively, and an outer annular region 15,16 respectively, but it is not necessary that the physical conformation of the two portions should be similar in this way. The inner core regions (13,14) of the two filter portions (5,6) are

defined by non-permeable plug wrap thus eliminating any flow communication between the inner core region and the outer annulus within the respective filter portions.

5 The filter characteristics of the various regions (13-16) are such that the total or preferential smoke paths through the filter when the portions 5,6 are in one relative position (Figure 1) is different from that when they are in another relative position (Figure 2).

10 In this particular embodiment the core region 13 of the portion 5 is an impermeable plug, surrounded by conventional material such as cellulose acetate tow in the annular region 15.

15 In portion 6 the core region 14 is in contrast a void of somewhat lesser diameter than region 13, while annular region 16 is a conventional filter material such as, again, cellulose acetate.

20 The permutations available between the different regions of the different portions is obviously very great, bearing in mind that there is a great range of known materials or admixtures available giving a wide range of permeabilities, pressure drops, chemical or physical actions or the possibilities of addition of perfuming or flavouring to the smoke.

25 In the situation seen in Figure 1 the

preferential smoke flow is illustrated by arrows 17, namely through the annular region 15 at filter portion 5 but then preferentially through the void central core region 14 of the filter portion 6. A certain minor amount of smoke will follow the path 18 through the annular region 16.

In Figure 2 the two portions have been brought into abutment so there is almost no possibility for flow through the region 14 and almost all smoke flow will be through both of the filter regions 15 and 16 of the portions 5 and 6, as shown by arrows 18.

In this way the smoker can select either at the beginning of the smoking of a cigarette or during it to have a different filtration efficiency applied to the smoke.

For example, this configuration would be useful to increase early puff yield, the filter being open for the first puffs thus increasing yield, and closed during the latter puffs to decrease delivery.

In other examples the outer annular region (such as 16) and inner core region (such as 14) of the filter portion 6 both have permeable materials and one has the following specific possibilities, amongst many others.

1. Selected Carbon Filtration

CONFIGURATION OF THE FILTER PORTION 6

Outer annular region: Cellulose Acetate (CA) filter,
normal efficiency

Inner core region: Activated carbon segment

5 FILTER CLOSED (as in Fig 2): Non carbon-filtered smoke
produced

FILTER OPEN (as in Fig 1): A combination of carbon-
filtered and non carbon-filtered
smoke results

10 2. Selected Flavour Filtration

CONFIGURATION OF THE FILTER PORTION 6

Outer Annular region: CA filter, normal efficiency

Inner core region: Flavoured thread CA filter,
normal efficiency

15 FILTER CLOSED: CA filtered smoke produced

FILTER OPEN: A combination of CA filtered
and flavoured smoke from the
flavoured thread Inner Core
results.

CLAIMS

1. A filter for a smoking article, said filter having at least two filter portions of different characteristics, link means linking said portions, said link means allowing a change in the relative longitudinal positions of the portions, the portions being respectively constructed such that the total filter characteristics to which smoke passing through the filter is subjected are different in said different relative positions of the portions.

2. A filter according to claim 1 wherein one of the relative positions is of axially abutting contact between ends of adjacent said portions.

3. A filter according to claim 2 wherein the regions in respective said portions have differing characteristics, such that when the two portions are in one relative position smoke flow will be through one set of regions at least one member of which set is in one of the portions and another member in another of the portions, but when the two portions are in another relative position smoke flow will be preferentially through a second set of regions at least one member of which set is in one of the portions and another member in another of the portions.

4. A filter according to claim 3 wherein the



regions in one portion of the filter are arranged such that an outer annular region has a lower flow resistance than an inner core region, while in another portion an inner core region has a lower flow of resistance than an outer annular region.

5. A filter according to claim 4 wherein at least one but not all of the regions is impermeable to smoke.

6. A filter according to claim 4 wherein at least one but not all of the regions is a void.

10 7. A filter according to claim 1 wherein the link is a wrap which is an integral whole joined to each of the portions.

8. A filter according to claim 7 wherein when the portions are in a position of nearer approach the wrap adopts a bellows formation.

15 9. A filter according to claim 1 wherein at least one of said portions has a sleeve projecting therefrom, an adjacent one of said portions being received in the sleeve at least in a position of nearer approach of the said portions.

10. A filter according to claim 4 wherein the link is a wrap which is an integral whole joined to each of the portions and when the portions are in a position of nearer approach the wrap adopts a bellows formation.

25 11. A smoking article incorporating a filter according to claim 1.



12. A smoking article incorporating a filter according to claim 10.

13. A filter for a smoking article, said filter having at least two filter portions, each having
5 regions of different characteristics, said portions being linked by an integral wrap which allows a change in the relative longitudinal positions of the two portions, the portions being constructed such that the total flow paths of smoke passing through the filter is
10 subjected are different in different relative positions of the two portions, said smoke flow path being preferentially through one set of regions at least one member of which set is in one of the portions and another member in another of the portions when said
15 portions are in one relative position, but when the two portions are in another relative position smoke flow being preferentially through a second set of regions at least one member of which set is in one of the portions and another member in another of the portions, the
20 regions in one said portion of the filter being arranged such that an outer annular region has a lower flow resistance than an inner core region, while in another portion an inner core region has a lower flow of resistance than an outer annular region thereof.
- 25 14. A filter as claimed in claim 13 incorporated in a smoking article.