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GB 2090117 A GB 1099923 A GB 1097218 A
GB 0928089 A GB 0760772 A EP 0059040 A1
US 1718122 A

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(54) Smoking articles

(57) Cigarettes comprise a tobacco rod 1 and a mouthpiece, which latter may consist of or comprise a filter plug 5. The circumference of one of the rod and the mouthpiece is less over a major proportion of its length than that of the other. Thus a cigarette may be provided which comprises a mouthpiece of conventional circumference and a tobacco rod of less than conventional circumference. Alternatively a cigarette may comprise a rod of conventional circumference and a mouthpiece of less than conventional circumference.

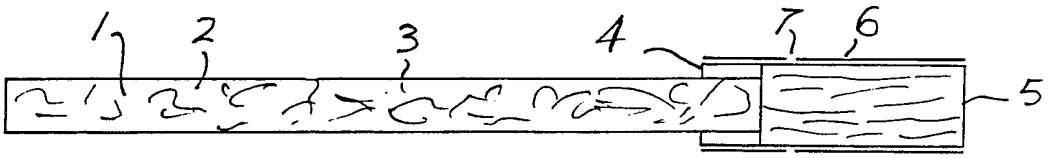

Fig. 1

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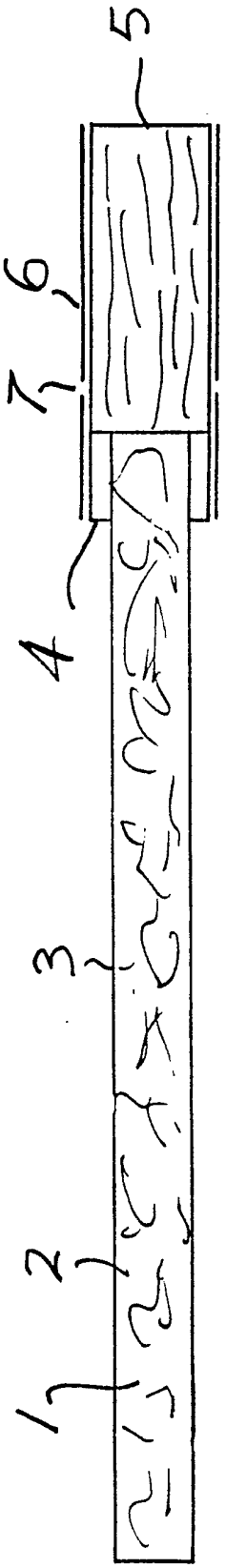

Fig. 1

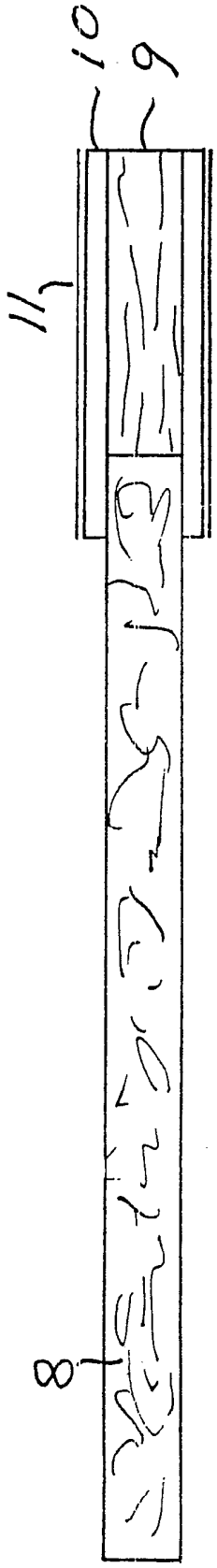

Fig. 2

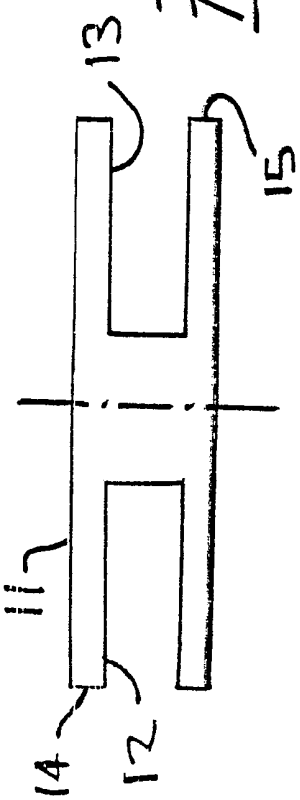

Fig. 3

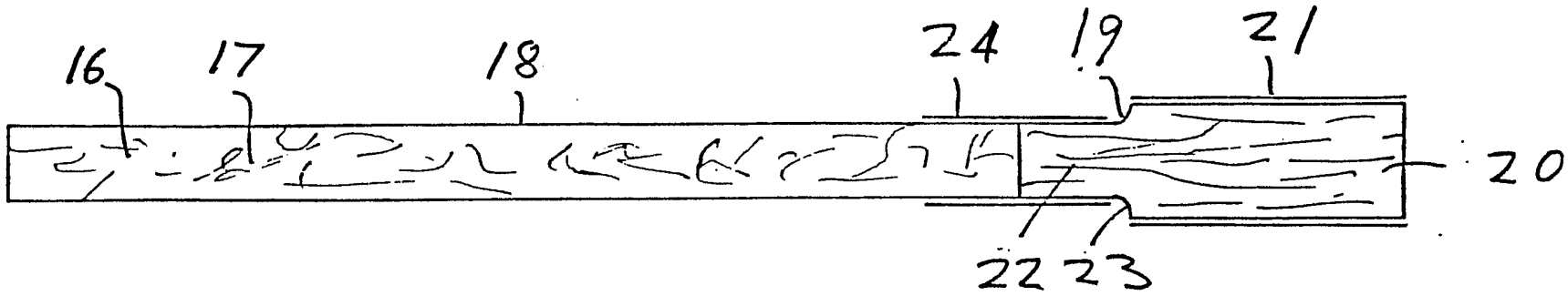

Fig. 4

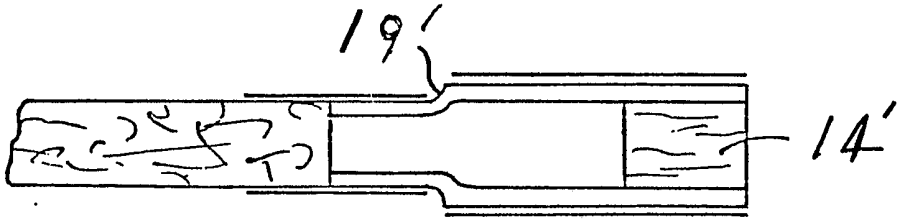

Fig. 5

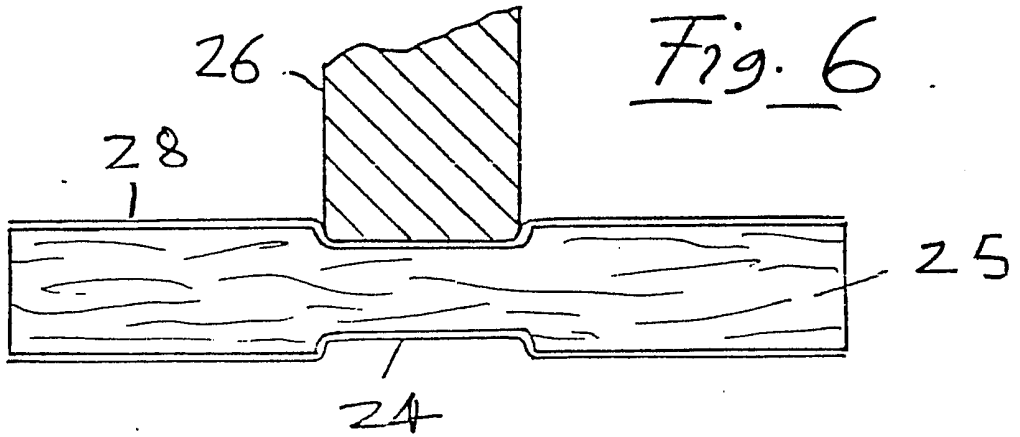

Fig. 6

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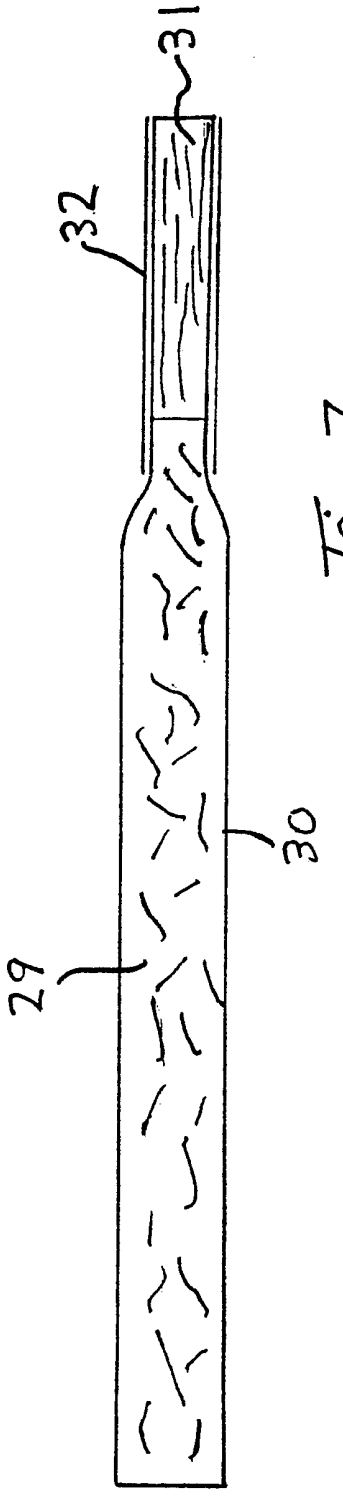

Fig. 7

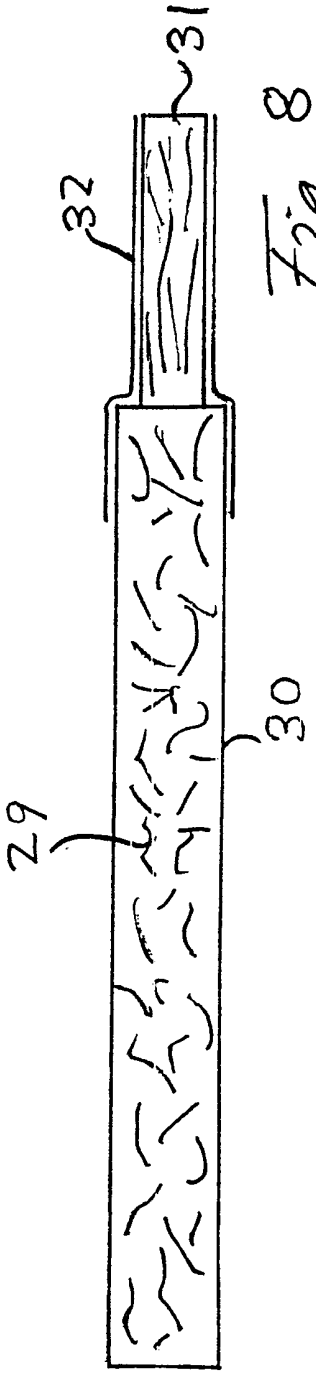

Fig. 8

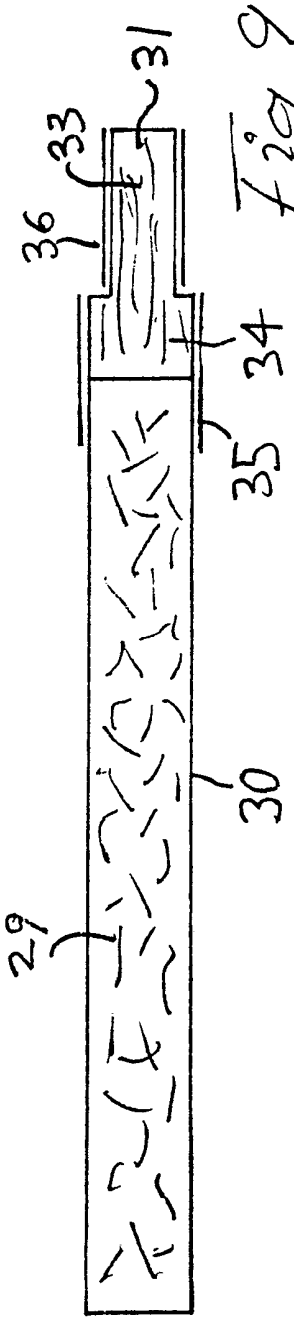

Fig. 9

IMPROVEMENTS RELATING TO SMOKING ARTICLES

The invention the subject of this application relates to smoking articles, cigarettes for example.

There have recently been introduced into the cigarette market so-called ultra slim cigarettes. These ultra slim cigarettes, although being of a circumference considerably less than that of conventional machine made cigarettes, smoulder reliably between puffs and exhibit a number of advantages over conventional cigarettes.

It is an object of the subject invention to provide improved ultra slim cigarettes.

It is also an object of the present invention to provide conventional cigarette rod elements with mouthpiece elements of less than conventional dimensions.

The present invention provides a smoking article comprising a mouthpiece element and a smoking material rod element, said elements having a substantially circular transverse cross-section, and the circumference of one of said elements being less over a major proportion of its length than the circumference of the other of said elements. The larger of the elements should preferably have a conventional circumference equal to or not less than about 24 mm and the smaller of the elements should have a circumference preferably equal to or not more than about 20 mm.

It is preferable in smoking articles in accordance with the subject invention for smoking material rods thereof to be of substantially uniform cross-section over at least a major proportion of the length thereof. It is also preferable that mouthpieces thereof should be of substantially uniform cross-section over the full length thereof, or at least over a length of the mouthpiece extending from the mouth end thereof.

When the smoking material rod has the lesser circumference, the circumference of the rod is advantageously in a range of 15 mm to 19 mm and more advantageously in a range of 16 mm to 18 mm.

When the mouthpiece element has the greater circumference, the circumference of the mouthpiece preferably does not exceed about 30 mm and is suitably about 25 mm. The length of the mouthpiece may be in a range of, for example, 15 mm to 35 mm.

The smoking material rod may extend to, or to the region of, the mouth end of the mouthpiece.

Smoking articles in accordance with the subject invention may comprise ventilation means.

In order that the subject invention may be clearly understood and readily carried into effect, reference will now be made, by way of example, to the drawing hereof, in which:

Figures 1, 2, 4, 5, 7, 8 and 9 depict diagrammatically, and in axial section, cigarettes in accordance with the subject invention;

Figure 3 depicts diagrammatically and in axial section a double unit length element formed of cellulose acetate, and Figure 6 depicts diagrammatically a step in the production of a filter element of the cigarette of Figure 4.

The cigarette of Figure 1 comprises a cigarette rod 1 of circular cross-section and a circumference in the range of 10 mm to 19 mm, 17 mm say. The rod 1 is comprised of a cut tobacco filler 2 wrapped in a cigarette paper 3 of an air permeability of, for example, 50 Coresta units. The cigarette paper is lap seamed with an overlap (not shown) of about 1 mm.

At an end region of the cigarette rod 1 there extends about the rod 1 a collar member 4. An end face of collar member 4 is flush with the end of the rod 1 and the collar member 4 extends along the rod 1 for a distance of, for example, 12 mm. In providing the collar member 4 a layer of material, paper for example, is wrapped about the rod 1. By way of example, if the rod 1 is of 17 mm circumference, the layer of material providing the collar member 4 may have a thickness of 1.3 mm, the collar member 4 in such case being of 8 mm exterior diameter. The collar member 4 is adhesively secured in position on the rod 1. Preferably, the collar member 4 is substantially air impermeable.

The collar member 4 may, for example, be formed of cartonboard, of a plastics material or of self-sustaining cellulose acetate.

Abutting the end of the cigarette rod 1 and the collar member 4 is a cylindrical filter element 5 of a circumference equivalent to the exterior circumference of the collar member 4. The cylindrical exterior surface of the element 5 is air permeable. A wrapper 6, suitably of conventional air impermeable tipping wrapper material, serves to secure the element 5 to the collar member 4. The wrapper 6 is provided with a ring of ventilation perforations 7 which permit the inflow of ventilation air to the element 5.

The cigarette of Figure 2 comprises a cigarette rod 8 constructed as per the rod 1 of the Figure 1 cigarette. The Figure 2 cigarette further comprises a filter element 9 of the same ultra slim circumference as that of the rod 8. Serving to interattach the rod 8 and the element 9 is a layer 10 of a material of a thickness such as to provide a mouthpiece circumference of at least about 24 mm. The material of the layer 10 is suitably of a substantially air impermeable material. A tipping wrapper 11 may be applied about the layer 10.

The cigarette of Figure 2 may be provided with ventilation means by way of laser or mechanically produced perforations (not shown) which extend radially through the layer 10, and the wrapper 11 if present, which perforations permit the inflow of ventilation air to the filter element 9.

Instead of the layer 10 serving to interattach the rod 8 and the element 9, the rod 8 and element 9 may be

interattached by a tipping wrapper of conventional thickness prior to the layer 10 being applied, as by wrapping for example, about the rod 8 and element 9.

The material of the layer 10 may, for example, be formed of cartonboard, of a plastics material or of self-sustaining cellulose acetate.

Figure 3 depicts in axial section a double unit length cylindrical element 11 of self-sustaining, fibrous cellulose acetate, which element 11 comprises axially disposed blind bores 12, 13 extending from respective ends of the element 11. The bores 12, 13 may be conveniently formed by a thermal moulding process, in which process heated cylindrical forming members are moved axially into the element 11. The annular end surfaces 14, 15 surrounding the respective mouths of the bores 12, 13 are sealed to render these surfaces air impermeable. Such sealing may be effected by applying a heated sealing member to the surfaces 14, 15 so as to fuse the cellulose acetate fibres at the surfaces, or by applying a sealant material to the surfaces.

After the double unit length element 11 has been formed as depicted in Figure 3 and the surfaces 14, 15 have been sealed, the mouth ends of first and second ultra slim cigarettes are inserted into the bores 12, 13. The cigarettes (not shown) are held in the respective bores either by virtue of the cigarettes being a push fit therein, or by use of an adhesive. After the insertion of the cigarettes in the bores 12, 13, the element 11 is

severed at the central transverse plane thereof, there thus resulting two discrete ultra slim cigarettes each comprising a mouthpiece of a circumference of the order of that of a conventional cigarette. The portion of each mouthpiece extending from the blind, i.e. inner, end of the bore thereof to the severed end face thereof serves to provide a tobacco smoke filter.

The exterior cylindrical surface of mouthpieces of cigarettes according to the present invention may be provided with an embossed pattern or markings, the embossement being effected by, for example, a thermal moulding process.

The cigarette of Figure 4 comprises a cigarette rod 16 of circular cross-section and a circumference in the range of 10 mm to 19 mm, 17 mm say. The rod 16 is comprised of a cut tobacco filler 17 wrapped in a cigarette paper 18 of an air permeability of, for example, 50 Coresta units. The cigarette paper is lap seamed with an overlap (not shown) of about 1 mm.

The cigarette of Figure 4 further comprises a filter element 19. A first portion 20 of the filter element 19 extending from the mouth end of the element 19 is of round transverse cross-section and of a circumference of, for example, 25 mm. A wrapper 21, suitably of conventional tipping wrapper material, extends about and is secured at the portion 20 of the element 19.

A second portion 22 of the filter element 19, of a transverse cross-section the same in shape and size as

that of the smoking material rod 16, extends into abutment with an end face of the rod 16. A radiused portion 23 of the element constitutes a transition between portions 20 and 22 of the element 19. A wrapper 24, suitably of conventional tipping wrapper material, extends about and is secured at an end zone of the rod 16 and the portion 22 of the element 19 and thus serves to interattach the rod 16 and the element 19.

A method of making filter elements as per the element 19 of Figure 4 will now be described.

A rod of filtration material, fibrous cellulose acetate for example, is wrapped in a thermally formable air impermeable paper, which paper may be one containing a proportion of synthetic thermoplastic material. A length of this rod, designated by reference numeral 25 in Figure 6, is rotated against a heated metal former 26 having a shape in cross-section as indicated in Figure 6. By this means a waisted central portion 24 is thermally formed in the rod length 25. Subsequent to this thermal forming operation the rod length 25 is severed at the central transverse plane of the portion 24. There thus results two filter elements each having a first portion of larger circumference and a second portion of smaller circumference. The peripheral surface of each element is air impermeable over the full length of the element owing to the presence of the air impermeable paper wrapper (designated by reference numeral 28 in Figure 6 but not shown in Figure 4).

The cigarette of Figure 4 may be provided with ventilation means by way of laser or mechanically produced perforations (not shown) which extend radially through the wrappers 21 and 28, which perforations permit the inflow of ventilation air to the filter element 19.

The cigarette of Figure 5 is similar to that of Figure 4 except that the mouthpiece takes the form of a hollow tubular member 19', within which is located a filter plug 14'.

In a case in which the peripheral surface of an element such as element 19 is not rendered air impermeable owing to the presence of an air impermeable wrapper extending over the full length of the wrapper, the portion 23 of the element may be rendered air impermeable by the application thereto of a sealant material.

Figures 7 to 9 depict cigarettes in accordance with the invention in which the rod element has the larger circumference. For similar parts like reference numerals are used in all three figures. The cigarettes comprise a smoking material rod 29 wrapped in a permeable cigarette paper 30 and a tobacco smoke filter element 31 interattached, in Figures 7 and 8, by a wrapper 32. The wrapper 32 depicted in Figure 8 may comprise a heat-shrinkable material, as may the filter element 31. In Figure 9 the filter element 31 has a first portion 33 of a circumference less than the circumference of a second portion 34. A wrapper 35, suitably of conventional

tipping wrapper material, extends about and is secured at the portion 34 of the filter element 31 and at an end zone of the rod 29, the wrapper 35 serving to interattach the rod 29 and the filter element 31. A wrapper 36, suitably of conventional tipping wrapper material, extends about and is secured at the portion 33 of the filter element 31.

Cigarettes may be provided in accordance with the present invention which exhibit the merits associated with ultra slim cigarettes while also providing to the smoker tactile satisfaction familiar to him in the smoking of cigarettes of conventional circumference.

C L A I M S

1. A smoking article comprising a mouthpiece element and a smoking material rod element, said elements having a substantially circular transverse cross-section, and the circumference of one of said elements being less over a major proportion of its length than the circumference of the other of said elements.

2. A smoking article according to Claim 1, wherein the larger of said elements has a circumference equal to or not less than about 24 mm and the smaller of said elements has a circumference equal to or not more than about 20 mm.

3. A smoking article according to Claim 1 or 2, wherein the element having the greater circumference is said mouthpiece element.

4. A smoking article according to Claim 3, wherein said mouthpiece element comprises a rod of filtration material and a collar, said collar receiving an end of said rod element and being disposed at the upstream end of said rod of filtration material, said rod of filtration material and said collar having substantially identical circumferences and being interattached by means of a tipping wrapper.

5. A smoking article according to Claim 3, wherein said mouthpiece element comprises a rod of filtration material having a circumference substantially identical to said rod element, and further comprises a collar surrounding

said rod of filtration material, said collar extending at one end of said rod of filtration material to receive said rod element.

6. A smoking article according to Claim 3, wherein said mouthpiece element comprises a rod of filtration material having a blind bore at an end thereof, said rod element being received in said blind bore.

7. A smoking article according to Claim 3, wherein the upstream end of said mouthpiece element has a circumference substantially identical to the downstream end of said rod element, said elements being interattached by a wrapper, and the downstream end of said mouthpiece element having a circumference greater than the upstream end thereof.

8. A smoking article according to Claim 7, said mouthpiece element comprising smoke filtration material.

9. A smoking article according to Claim 7, said mouthpiece element comprising a tubular plastics element.

10. A smoking article according to Claim 9, said mouthpiece element further comprising a plug of filtration material.

11. A smoking article according to Claim 1 or 2, wherein the element having the greater circumference is said rod element.

12. A smoking article according to Claim 3 or 11 wherein, said elements are interattached by a heat-shrink wrapper.

13. A smoking article according to Claim 11, wherein the circumference of a downstream end portion of said rod element is substantially identical to the circumference

of said mouthpiece element, said elements being interattached by means of a wrapper.

14. A smoking article according to Claim 11, wherein an upstream end portion of said mouthpiece element has a circumference substantially identical to the circumference of a downstream end portion of said rod element, a downstream end portion of said mouthpiece element having a circumference less than that of said upstream end portion thereof.

15. Smoking articles substantially as hereinabove described with reference to Figures 1 to 9 of the drawings hereof.

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