

A Smoking Article

This invention relates to smoking articles. In particular this invention relates to smoking articles wherein a flavouring material is heated by a fuel source to emit a fluid which is to be inhaled by the smoker without inhaling smoke from the fuel source.

The present invention provides a smoking article comprising a mouthpiece section, a smoking section, said smoking section comprising a cylindrical combustible tube having a flavouring material therein, a combustible fuel element circumscribing said combustible tube, a wrapping material circumscribing said fuel element, a disc separating said smoking section from said mouthpiece section, said disc having a centrally disposed opening therethrough in flow-through communication with said flavouring material and said mouthpiece section, said disc receiving a flow-through connecting tube through said opening, and sealing means connecting said disc to said flow-through connecting tube to prevent the flow of fluids from said smoking section to said mouthpiece section except through the flow-through connecting tube.

U.S. Patent No. 3,258,015 ('015), to Ellis describes a smoking device for delivering an improved smoke stream of controlled character which does not contain the products of combustion and teaches the use of a tubular member with an outwardly flared flange or annulus at its inner end. The heating means surrounds the tubular member. An outer wrapper touches the outside surface of the heating means and the circumference of the flange of the tubular member. However, the invention does not teach

sealing means between the annulus and the outer wrapper. U.S. Patent No. 3,356,094 ('094), also to Ellis has a similar circumscribing relationship of fuel element and flavour material but also teaches passing small amounts of smoke from the heating means into the mouth to make the product more cigarette-like. Therefore, in neither the '015 nor the '094 patent is it taught that the smoke from the heating means should be completely prevented from entering the smoker's mouth.

A better understanding of the present invention will be had upon reference to the following description in conjunction with the accompanying diagrammatic drawing wherein:

The Figure is a cross-sectional view of the smoking article.

With reference to the Figure, there is shown a smoking article 10. The smoking article 10 contains a mouthpiece section 20 and a smoking section 40 separated by a disc 50.

Smoking section 40 comprises a cylindrical combustible tube 42, a flavouring material 44, a combustible fuel element 46, and a wrapping material 48. Cylindrical combustible tube 42 is hollow and extends axially from the upstream end to downstream end of the smoking section 40. Examples of materials from which cylindrical combustible tube 42 can be constructed are paper or foil. The optimum inside diameter of the cylindrical combustible tube 42 is from about 3mm to 4mm. This provides sufficient air space so that when the

flavourant is added, a normal 3 to 5 inch WG tobacco section pressure drop is realised. Furthermore, in a preferred embodiment, the tube is comprised of a wound alumina trihydrate sheet (2 ply) of from 0.25mm to 0.5mm thickness.

Additionally, cylindrical combustible tube 42 can be treated with a burn retardant. Examples of this burn retardant include, for example, sodium chloride, as one preferred burn retardant. The purposes for the burn retardant are to decrease the chance of smoke from the burning of combustible fuel element 46 from entering the mouth of the smoker and to prevent flavouring material 44 from burning.

Flavouring material 44 is contained within cylindrical combustible tube 42. In general, flavouring material 44 is a material which, when heated, emits the desired flavour to the smoker. Specific examples include flavourful tobaccos as a solid mix in a chopped, stranded, or coating condition. The mix is generally made from a dry collection of tobaccos that is combined with an aerosol generant such as glycerine or glycols and water.

Combustible fuel element 46 circumscribes cylindrical combustible tube 42. Wrapping material 48 circumscribes both smoking section 40 and mouthpiece section 20. When smoking section 40 is ignited, the burning of combustible fuel element 46 causes flavouring material 44 to give off the desired flavour. Tobacco or

carbon are examples of material which can be used for combustible fuel element 46.

Mouthpiece section 20 is shown as a hollow cylinder having approximately the same diameter as smoking section 40. Examples of materials which can be used to construct mouthpiece section 20 include tube wound kraft paper of 0.25mm wall thickness or an injection moulded thermosetting plastic.

While not shown in the drawing, a cellulose filter element can be added to the downstream end of mouthpiece section 20 to give the appearance of a typical cigarette.

In addition, tipping paper may circumscribe the outside of the mouthpiece section 20 to give the appearance of a typical cigarette.

Mouthpiece section 20 and smoking section 40 are separated by a disc 50 with a centrally disposed opening through disc 50. Flow-through connecting tube 52 passes through the opening in disc 50 and provides flow-through communication between flavouring material 44 and mouthpiece section 20. Disc 50 may be constructed of, for example, paper, foil or plastic. A preferred foil is generally a kraft backed foil, for example, 0.005 inch thick. A preferred plastic is a thermosetting type suitable for injection moulding. Plastic is a preferred material, especially as an integral part of a plastic mouthpiece section 20.

Flow-through connecting tube 52 may be constructed of graphite or carbon. An alternative construction would be to construct flow-through connecting tube 52 by

winding multiple plies of a band cast sheet made from a slurry of insulating material with pulp, sodium carboxymethyl cellulate binder, glycerine and water. One example of an insulating material is alumina trihydrate. Preferably, the pulp will be in the range of from about 3 to 5 per cent by weight, the binder will be in the range of from about 10 to 12 per cent by weight, the glycerine will be in the range of from about 6 to 8 per cent by weight and the water will be from about 85 to 89 per cent by weight.

For a generally acceptable product for commercial utilisation, the flow-through connecting tube 52 should have an inside diameter of from about 2.5mm to 3.5mm.

Sealing means 54A and 54B are provided to prevent the flow of smoke from smoking section 40 into mouthpiece section 20 except through flow-through connecting tube 52. Sealing means 54A and 54B may be, for example, heat resistant epoxy. The sealing means 54A and 54B is around and between the connecting tube 52 and the opening in disc 50 and may also be between the outside diameter of disc 50 and wrapping material 48.

A nucleating chamber 56 is generally provided in the mouthpiece section 20. Chamber 56 keeps the total cigarette weight and pressure drop down. In particular, if the combustible tube 42 and connecting tube 52 are relatively small, the nucleating chamber is needed to keep the pressure drop at a reasonable level.

The foregoing detailed description is given primarily for clearness of understanding and no

unnecessary limitations are to be understood therefrom, for modifications can be made by those skilled in the art upon reading this disclosure, and may be made without departing from the scope of the appended claims.



CLAIMS

1. A smoking article comprising a mouthpiece section; a smoking section, said smoking section comprising a cylindrical combustible tube having a flavouring material therein, a combustible fuel element circumscribing said combustible tube, a wrapping material circumscribing said fuel element; a disc separating said smoking section from said mouthpiece section, said disc having a centrally disposed opening therethrough in flow-through communication with said flavouring material and said mouthpiece section, said disc receiving a flow-through connecting tube through said opening; and sealing means connecting said disc to said flow-through connecting tube to prevent the flow of fluids from said smoking section to said mouthpiece section except through the flow-through connecting tube.
2. The smoking article of Claim 1 where said cylindrical combustible tube is treated with a burn retardant.
3. The smoking article of Claim 2 where said burn retardant is sodium chloride.
4. The smoking article of Claim 1 where said combustible fuel element is selected from tobacco or carbon.
5. The smoking article of Claim 1 where said sealing means is a heat resistant epoxy.
6. The smoking article of Claim 1 where said disc is made from paper, foil or plastic.
7. The smoking article of Claim 1 where the cylindrical combustible tube is made from paper or foil.



8. The smoking article of Claim 1 where the flow-through connecting tube is made from graphite or carbon.
 9. The smoking article of Claim 1 where the flow-through connecting tube is made by winding multiple plies of a band cast sheet made from a slurry of insulating material with pulp, binder, glycerine and water.
 10. The smoking article of Claim 9 wherein the pulp is from 3 to 5 weight per cent, the binder is from 10 to 12 weight per cent, the glycerine is from 6 to 8 weight per cent, and the water is from 85 to 89 weight per cent.
 11. The smoking article of Claim 1 where said flow-through connecting tube has an inside diameter of from 2.5mm to 3.5mm.
 12. The smoking article of Claim 1 where said cylindrical combustible tube has an inside diameter of from 3mm to 4mm.
 13. The smoking article of Claim 9 where the insulating material is alumina trihydrate.
 14. The smoking article substantially as hereinabove described with reference to the accompanying Figure.
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