US 20060118128A1

(19) United States

(12) Patent Application Publication (10) Pub. No.: US 2006/0118128 A1

Hoffmann et al. (43) Pub. Date: Jun. 8, 2006

(54) NICSTIC REFILL SYSTEM

(76) Inventors: **Thomas Hoffmann**, Staufenberg (DE); **Sylvia Piroth**, Wiesbaden (DE)

Correspondence Address:
SAND & SEBOLT
AEGIS TOWER, SUITE 1100
4940 MUNSON STREET, NW
CANTON, OH 44718-3615 (US)

(21) Appl. No.: **10/554,948**

(22) PCT Filed: **May 3, 2004**

(86) PCT No.: **PCT/EP04/04634**

(30) **Foreign Application Priority Data**

May 12, 2003 (DE)..... 103 21 379.1

Publication Classification

(51) **Int. Cl.**
A24F 47/00 (2006.01)

(52) **U.S. Cl.** **131/271**; 131/270; 128/202.21

(57) **ABSTRACT**

The invention relates to a smoke-free cigarette, which provides the user with just nicotine and no toxic and/or carcinogenic compounds. The cigarette comprises two pieces, a reusable piece with a thermoplastic sleeve with a deposited heat-reflecting coating, an air inlet opening and a heat source mounted in the sleeve such that air flow channels are created with a star-shaped or wave-shaped form; and an exchangeable non-reusable piece with a nicotine and aroma deposit, a filter and optionally a nicotine meter and usage display. The heat released by the heat source heats the air sucked through the air-flow channels by the consumer and passes through the deposit such as to release the nicotine and aromas present in the deposit which, after passing through the filter may be consumed by the smoker.

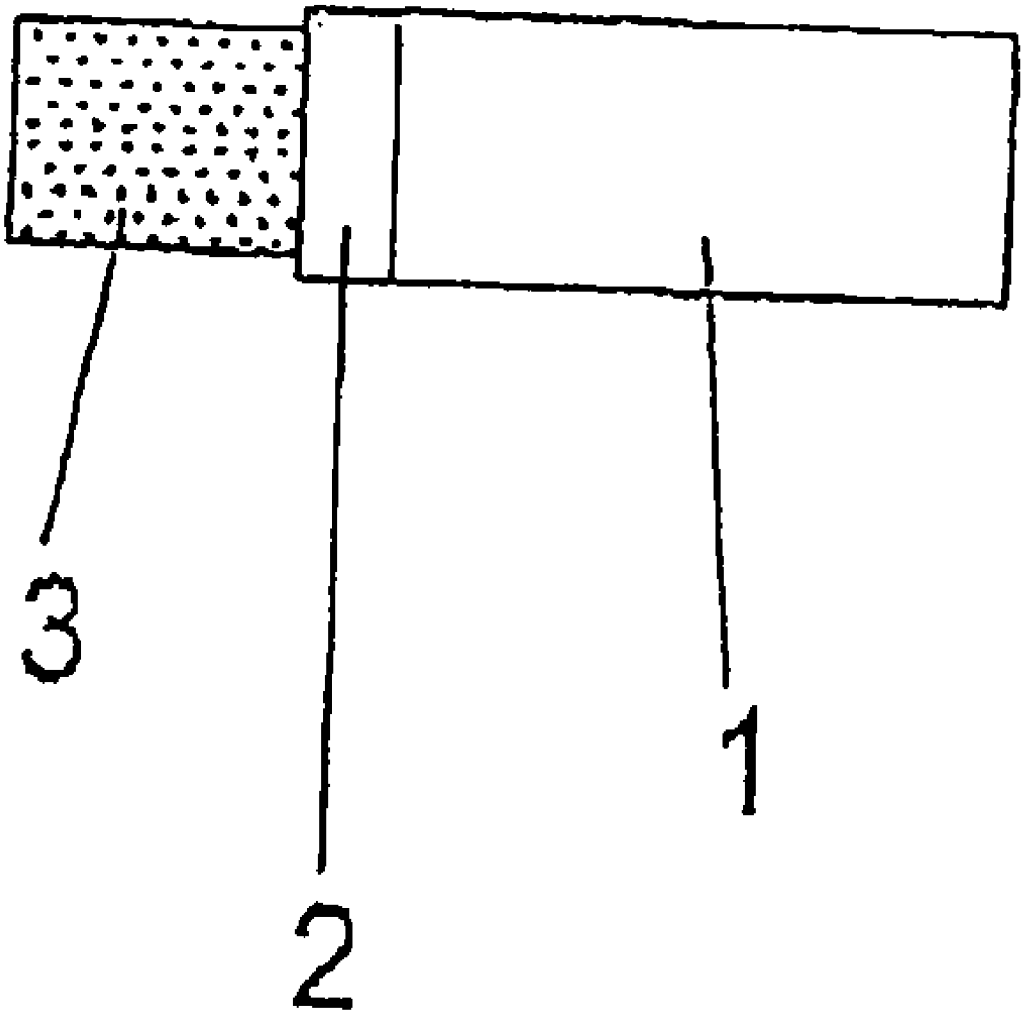


FIG. 1

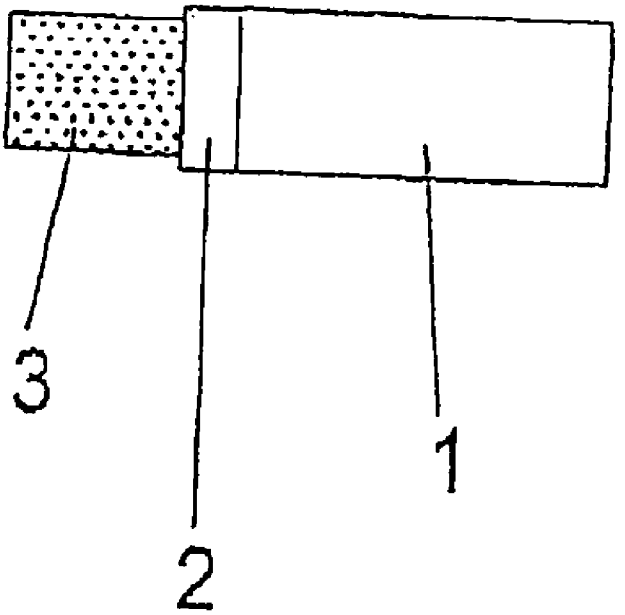


FIG. 2

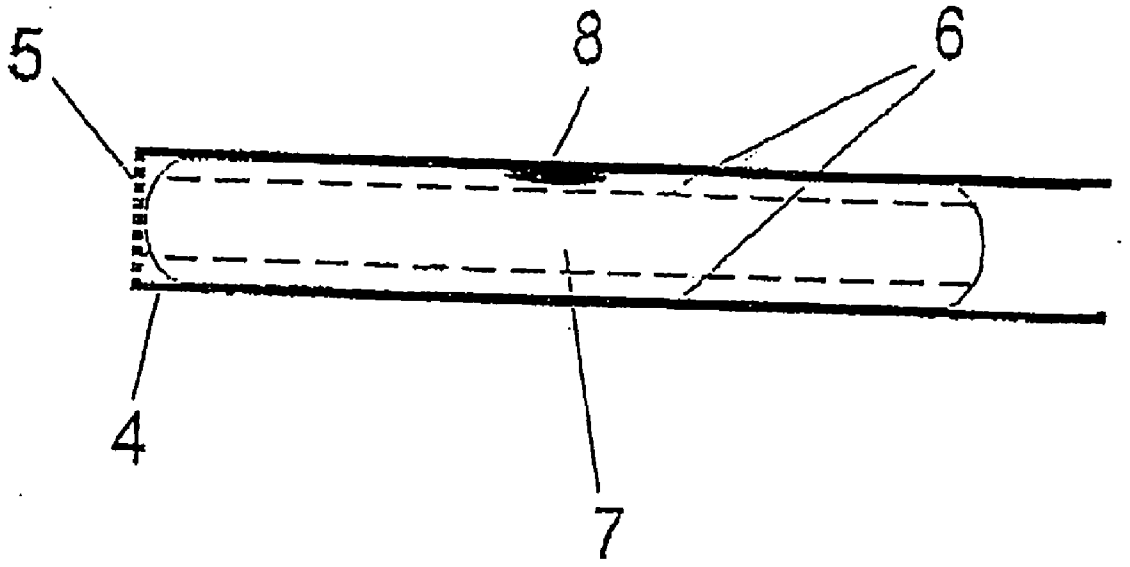


FIG. 3

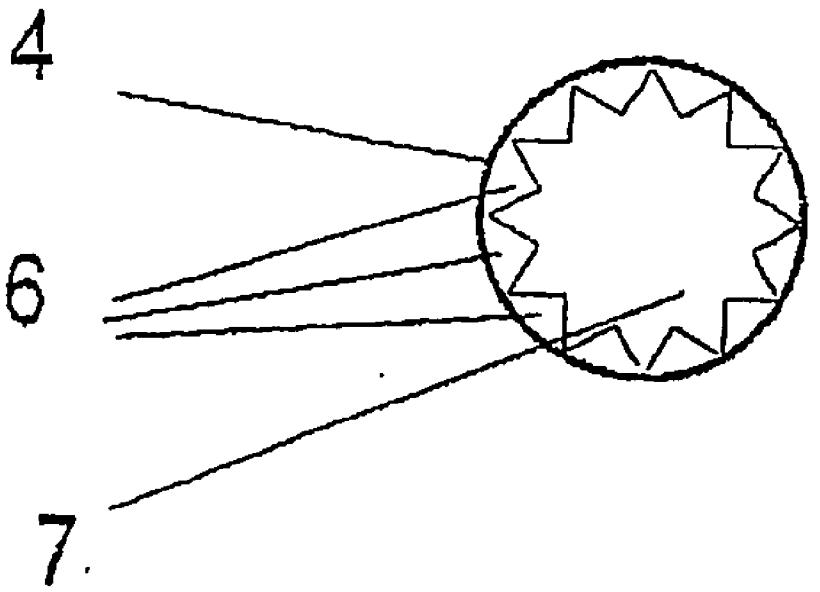


FIG. 4

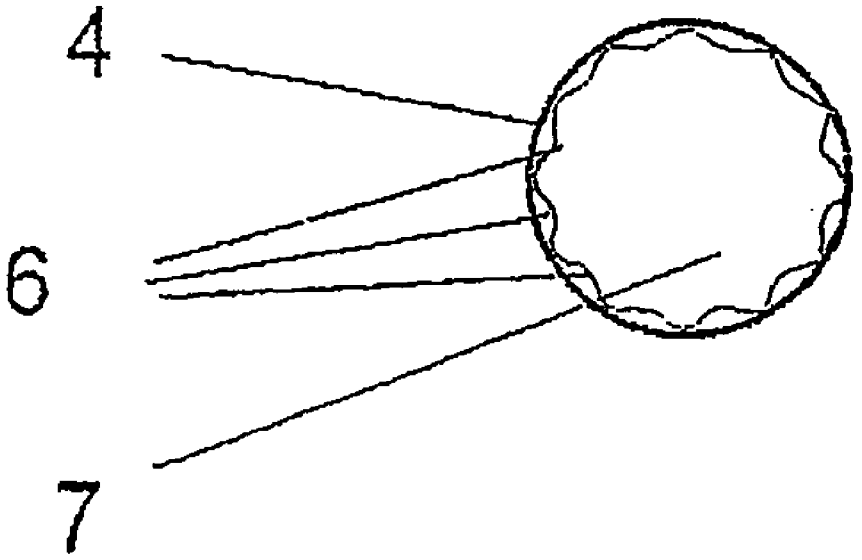


FIG. 5

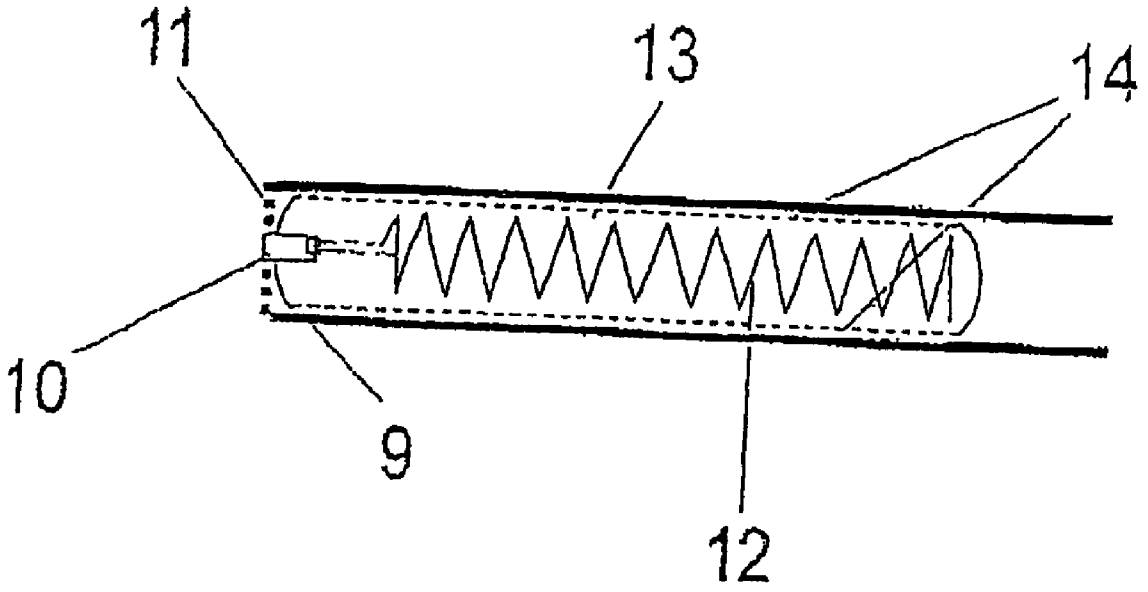
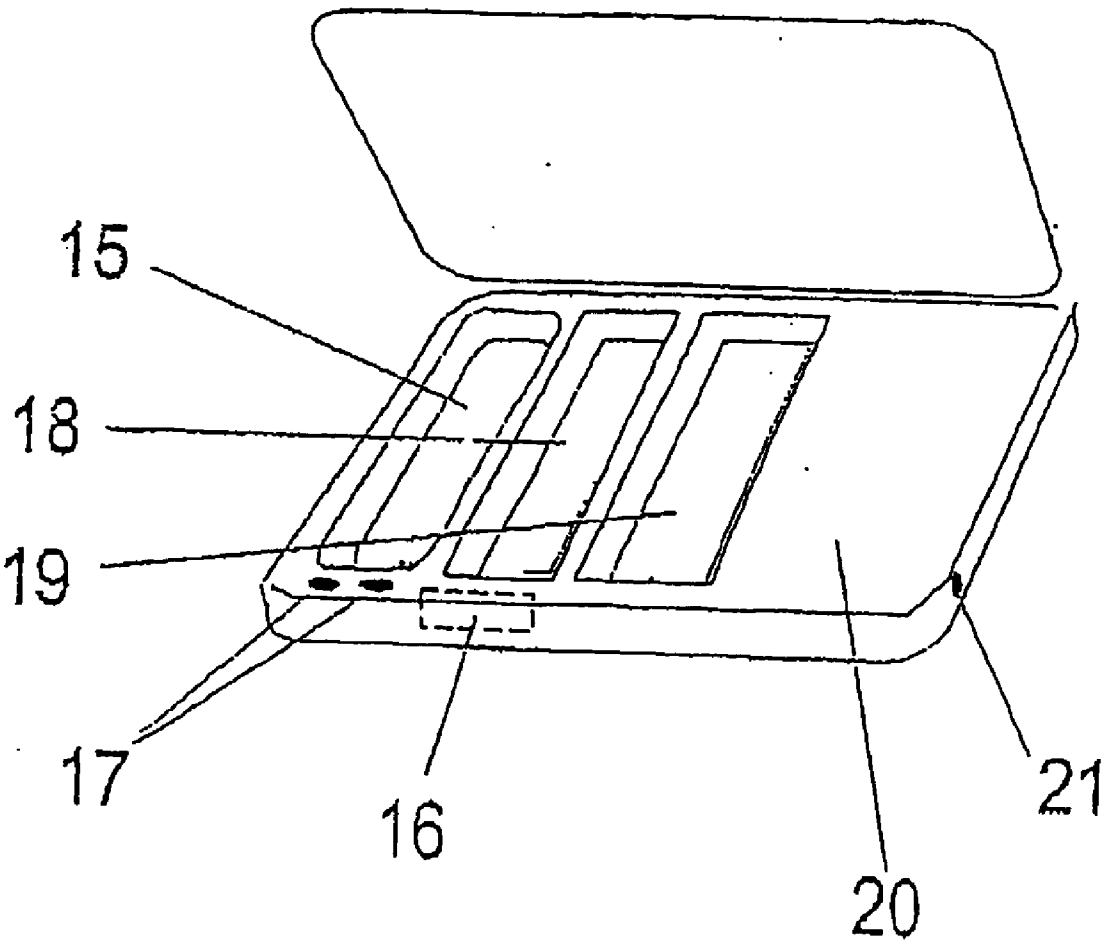


FIG. 6



NICSTIC REFILL SYSTEM

FIELD OF APPLICATION

[0001] The invention of the smoke-free cigarette (NICSTIC REFILL SYSTEM in the following) should prevent the toxic materials (tar, carcinogenic compounds like, inter alia, hydrazine, chrysene, arsenic, cadmium, benzapyrene, benzanthracene, formaldehyde, nitric amines) occurring during conventional smoking and to supply the consumer only the nicotine with aromatic substances desired by him.

[0002] At the same time the aim of the subject matter of the invention was, apart from the supply of the nicotine, to achieve an as close as possible approximation of the normal smoking, namely by

[0003] a) retaining the shape of the cigarette,

[0004] b) retaining the conventional filter tip,

[0005] c) producing the agreeable feel of heat occurring during inhalation, and

[0006] d) retaining the flavour of the tobacco thus facilitating for the smoker the change from normal cigarettes to the NICSTIC REFILL SYSTEM.

[0007] By the smoke-free nicotine supply the consumer of the NICSTIC REFILL SYSTEM can satisfy his nicotine requirement in the face of the ever-increasing prohibition of smoking (aeroplanes, railway stations, public buildings, restaurants) as well as in households (living rooms, children's rooms), without irritating and/or injuring third parties (passive smokers) and without violating the ban.

[0008] Due to the fact, that the NICSTIC REFILL SYSTEM can offer variable strengths of nicotine deposits, in an ideal manner it can be used to break the smoke-nicotine habit.

DESCRIPTION OF THE INVENTION

[0009] The smoke-free cigarette (NICSTIC REFILL SYSTEM in the following), subject mater of the invention, is exactly the size of a conventional cigarette.

[0010] The NICSTIC REFILL SYSTEM comprises four parts:

[0011] an exchangeable, non-reusable part, namely the filter (**1**), nicometer-consumption meter (**2**) (optional) and the nicotine deposit, incl. aromatic substances (**3**) (**FIG. 1**),

[0012] a reusable part (**FIG. 2**), namely the jacket (**4**), coated with thermoplastic material, with an air inlet opening (**5**), air-flow channels (**6**), these shown longitudinally sectioned in **FIG. 2** and cross-sectioned in **FIG. 3**, a star-shaped heat source (**7**) in **FIG. 3** and a wave-shaped heat source in **FIG. 4** and a trigger/igniter (**8**), while by virtue of the smaller diameter (relative to the reusable part) and the length of the nicotine deposit on the one hand and a corresponding space, left free, in the reusable part on the other, a slipping-on of the exchangeable part according to **FIG. 1** up to the filter or the nicometer/consumption meter, incl. filter, the diameter of which corresponds exactly to the reusable part, is assured,

[0013] alternatively, a reusable part (**FIG. 5**), namely the sleeve (**9**) from a thermoplastic material with a plug-in connection (**10**) to the charging station in the air inlet opening (**11**) to the heating coil (**12**), with a heat-storing medium (**13**) and air-flow channels (**14**), while due to the smaller diameter (relative to the reusable part) and the length of the nicotine deposit on the one hand and a corresponding space, left free, in the reusable part on the other, a slipping-on of the exchangeable part according to **FIG. 1** up to the filter or the nicometer/consumption meter, incl. filter, the diameter of which corresponds exactly to the reusable part, is assured,

[0014] and together with the part discussed in 2.3 from a storage and charging station configured in the form of a case (**FIG. 6**), said station connecting, via the plug-in connection (**10**), the heating coil (**12**) present in the reusable part (**FIG. 5**) to the charging compartment (**15**), and heating it until the thermostat (**16**) terminates the heating process and simultaneously signals the application time by the LED indicator (**17**) displaying the green colour (previously displaying the red colour); the fourth part further comprises a storage compartment (**18**) for two or further parts in accordance with **FIG. 5** which after the removal of the heated-up reusable part can be placed into the charging compartment for the purpose of heating up and then are immediately available again to the smoker after consuming the first "cigarette" and a further storage compartment (**19**) for the non-reusable parts (**FIG. 1**); the storage and charging station further comprises a battery in a battery compartment (**20**), that is connected via a plug-in opening (**21**) to charge the battery.

[0015] Instead of releasing the nicotine during the burning of the tobacco, the nicotine is bound in a nicotine deposit (**3**), that is situated directly in front of the filter, and is released together with the tobacco aromatic substances by the heated up air and inhaled by the consumer.

[0016] The heating of the air is carried out by the energy stored in the heat source (**7**) The energy is stored either in the form of crystallisation heat, that is activated by the trigger/igniter (**8**), or is released by a heat-storing medium (**13**), that is adequately heated up by the heating coil (**12**). The heat, occurring after the activation, is sufficient for approx. 1-3 minutes to inhale heated air, that can release nicotine (in a quantity individually desired/chosen by the consumer), corresponding to one cigarette. At the same time it is assured, that the heat will be released evenly during a period of approx. 1-3 minutes. Even if the inhalation is interrupted, due to the released crystallisation heat/released heat of the heat-storing medium, no disruption, no danger, will occur, since the heat can be released also through the air intake opening.

[0017] The heat source (**7**) is fed by a material, that after crystallisation and heat release can be "recharged" up to 3000 times by supplying heat (by a water bath in hot/boiling water) or from a heat-storing medium (**13**), that is heated shortly prior to commencing the smoking by supplying electric energy via heat coils according to **FIG. 6**, while a charging to carry out each of the multiple smoking processes and an overall serviceability lasting for years is ensured by a battery (rechargeable through any power point).

1. A smoke-free cigarette, comprising two parts namely:

a reusable part with a jacket coated with a thermoplastic material with a vapour-deposited heat-reflecting coating, an air inlet opening and a heat source that is included in the coating in such a manner that air-flow channels are produced

an exchangeable, non-reusable part with a nicotine-flavour deposit, and a filter; and wherein the heat, released by the heat source, heats up the air inhaled by the consumer through the air-flow channels and passes in a heated state through the deposit, consequently releasing nicotine and aromatic substances situated in the deposit and after passing through the filter can be absorbed by the smoker.

2. A smoke-free cigarette according to claim 1,

wherein the heat source comprises crystals welded into a film, that during a crystallisation process can produce a quantity of heat for a time period of between 1-3 minutes that is sufficient to release the nicotine and the aromatic substances in the nicotine-flavour deposit.

3. A smoke-free cigarette according to claim 2, wherein by supplying heat to the crystals welded into the film, the crystallisation process can be repeated up to 3000 times.

4. A smoke-free cigarette according to claim 1, wherein the heat source when triggered by an activating membrane as a trigger/ignitor, produces an adequate quantity of heat for at least one heating period of between 1-3 minutes in length that releases the nicotine and the aromatic substances in the nicotine-flavour deposit, and wherein the heat source is an exchangeable one.

5. A smoke-free cigarette according to claim 1, wherein the heat source is a heat storing medium, that during a repeatable period of between 1-3 minutes releases such a quantity of heat that is sufficient to heat up the air inhaled by the smoker and passing through the nicotine-flavour deposit, that the desired nicotine and aromatic substances will be released, while the amount of energy that has to be released into the medium for the above mentioned purpose is supplied by heating coils immediately prior to the smoking process, said heating coils being heated up by an external battery situated in a charging station.

6. A smoke-free cigarette according to claim 5, wherein the charging station includes a thermostat for limiting the amount of energy supplied.

7. A smoke-free cigarette according to claim 5 wherein the readiness of the smoke-free cigarette is simultaneously signaled to the consumer by one or more of an LED display changing colours and an acoustic signal.

8. A smoke-free cigarette according to claim 5, further comprising a storage and charging station which is configured in the form of a case containing two storage compartments, a first one of the storage compartments holding at least two reusable parts for the cigarette in such a manner that immediately after the removal of a first heated-up reusable part, a next reusable part of the smoke-free cigarette can be heated up; and a second one of the storage compartments holding the non-reusable part of the cigarette.

9. The smoke-free cigarette according to claim 1 wherein the heat source is one of a star-shape and wave-shape when viewed in cross-section.

10. The smoke-free cigarette according to claim 1 wherein the non-reusable part of the cigarette further includes a nicotine consumption display.

11. The smoke-free cigarette according to claim 2, further comprising a trigger/ignitor that initiates the crystallisation process.

12. The smoke-free cigarette according to claim 11, wherein the trigger/ignitor is an activating membrane.

* * * * *