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(54) Title: SMOKING ARTICLE WITH ELECTRONIC FLAVOR RELEASER

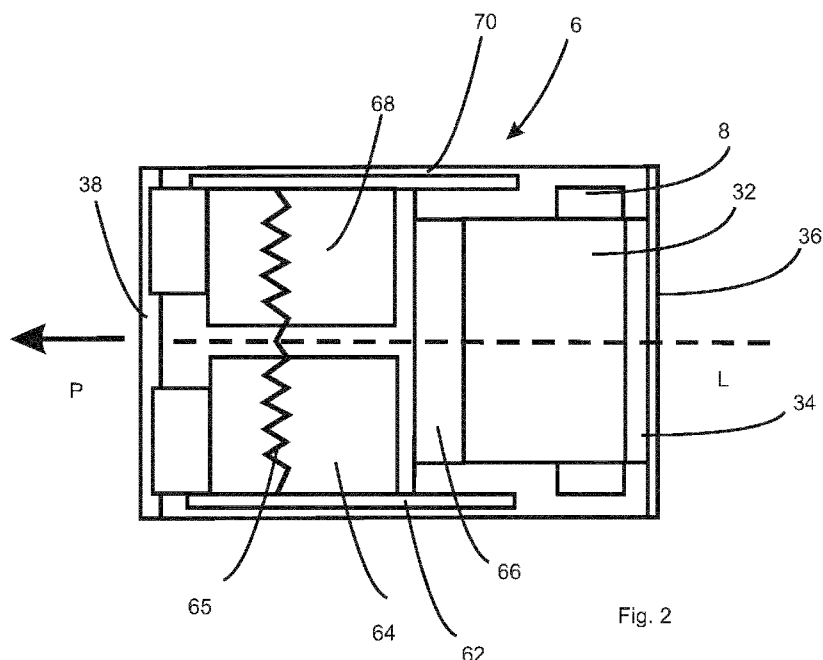


Fig. 2

(57) Abstract: Smoking article (10) with a filter segment (2) and an aerosol generating segment (4) contain-ing tobacco. According to the invention the smoking article (10) comprises an electronic flavor releaser (6), which allows the release of flavors, wherein the electronic flavor releaser (6) also allows the passage of a main stream smoke arising from the aerosol generating segment (4) and wherein the flavor releaser (6) is inserted inside the filter section (2) or adjacent to the filter section (2).



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Smoking article with electronic flavor releaser

Description

The present invention is directed to an aerosol generating device such as a smoking article, comprising an electronic flavor releaser. A preferred application of the current invention relates to the provision of a smoking article like a cigarette or heat-not-burn tobacco containing stick comprising an electronic flavor releaser integrated in a filter segment thereof to provide on-demand flavoring of an aerosol (smoke or vapor) generated upon heating (through burning or convective heating) of an aerosol generating material such as tobacco.

In the state of the art, it is known to use flavor releasing elements, for example to at least partially alter the smoke taste. These flavor releasing elements may in particular take the form of a breakable capsule containing a liquid flavor composition, or threads arranged in the filter and impregnated with a flavourant.

While consumers appreciate the opportunity offered by these flavoring devices to provide on-demand flavoring of a smoking article, those are not free from disadvantages. A first of these disadvantages is the relatively poor controlled activation capacity of some flavoring devices, in particular capsules. It is indeed sometimes difficult to break such capsules open when arranged in the filters of smoking articles. Sometimes to the contrary they are already broken before use, thus leaving the consumers with no choice but a flavored smoke.

Also, the capsule flavor releasers known from the state of the art do not have a possibility to 'turn off' the flavor delivery once the capsule is crushed. Neither do flavored threads.

It is therefore an object of the invention to provide an aerosol generating device with a flavor releaser, which is more consumer friendly than the products known from the state of the art. It is another object of the invention to allow consumers more control over the flavor release in smoking articles.

These objects are reached by a smoking article as defined in claim 1. Preferable embodiments are object of the subclaims.

A smoking article according to the invention comprises a filter segment and an aerosol generating segment, the aerosol generating segment containing aerosol generating material comprising tobacco.

According to the invention, the smoking article comprises an electronic flavor releaser which allows the release of flavors, wherein the electronic releaser also allows the passage of a main stream aerosol such as smoke or vapor arising from the aerosol generating segment and wherein the flavor releaser is inserted inside and/or at the edge of the filter segment.

It is therefore suggested to provide an aerosol generating device and especially a smoking article, which comprises an electronic flavor releaser, which is integrated inside the filter. It is possible that the flavor releaser is integrated into the bulk of the filter element, but it is also possible that the flavor releaser is arranged at an edge or adjacent to the filter element. Also the flavor releaser can be located between the filter segment and the aerosol generating segment.

In a preferred embodiment of the invention the flavor releaser is preferably configured to allow circulation of main stream smoke or vapor from the aerosol generating segment flowing through it towards a filter segment mouth end. The flavor releaser therefore preferably comprises at least one flow channel for the aerosol, which extends at least partially adjacent and/or through the at least one atomizer. It further comprises inlets and preferably longitudinal inlets and/or outlets and preferably longitudinal outlets (with respect to the longitudinal direction of the aerosol generating device smoking article).

Preferably the inlet has a cross section which is substantially equal to the cross-section of the aerosol generating segment towards which it is oriented in the filter segment, to allow proper airflow intake in the article.

- 5 Once the flavor releaser is activated by a consumer (for example by pressing a switch) and optionally once the consumer makes a puff, it starts to release flavor, preferably by applying electrical power to an atomizer.

10 This atomizer is designed to receive a signal from a flow sensor indicating that a puff is being made at an end of the filter segment of the aerosol generating device.

In a preferred embodiment, the length of the flavor releaser is greater than 8 mm, preferably greater than 9 mm. In another preferred embodiment the length of the smoking article is greater than 50mm, preferably greater than 60mm.

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In another preferred embodiment, the length of the flavor releaser is smaller than 20 mm, preferably smaller than 18 mm, preferably smaller than 16 mm. In another preferred embodiment the length of the smoking article is smaller than 160mm, preferably smaller than 150mm and preferably smaller than 140mm.

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In another preferred embodiment, the diameter of the smoking article and/or the flavor releaser is greater than 4 mm, preferably greater than 5 mm, preferably greater than 6 mm and preferably greater than 6.4 mm.

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In another preferred embodiment, the diameter of the smoking article and/or the flavor releaser is smaller than 10 mm, preferably smaller than 8 mm, preferably smaller than 7 mm and preferably smaller than 6.8 mm.

In another preferred embodiment the smoking article has a constant diameter over its length

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In another preferred embodiment, the filter segment contains two or more subsegments. It is possible that the flavor releaser is arranged in a direction of mainstream aerosol between the two or more segments, i.e. a longitudinal direction of the smoking article. Alternatively it is possible that the flavor releaser is located between two filter segments in a direction which is perpendicular to the longitudinal direction of aerosol generating device.

In another preferred embodiment, the flavor releaser comprises an activator that allows a user to activate and/or deactivate the flavor releaser. Therefor during smoking, the consumer can decide whether he wants to activate the release of flavor or not.

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In another preferred embodiment, the activator comprises a switch, which can be manually actuated, wherein the switch is preferably arranged on or to be accessible at an outer circumference of the smoking article. Preferably, this switch is located between a mouth piece of the filter segment and the aerosol generating segment.

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In another preferred embodiment, said switch surrounds the outer circumference of the smoking article and especially the filter segment of the smoking article. This has the advantage that the consumer can touch or activate the switch at any point of that outer circumference of the smoking article.

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Preferably, the activator is responsive to a normal pressing movement of a finger.

However, in another preferred embodiment, this activator and especially activator switch is protected from undesired activation. Especially the switch should be protected from undesired activation during production process of smoking articles with such a device.

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In another preferred embodiment of the invention the switch is a membrane switch. It is possible that parts of the switch are interconnected by a spring and/or suspension device.

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Preferably a consumer can change flavors on demand while using the smoking article. To that aim, the flavor releaser may comprise two or more atomizers which may contain and release various flavors into a mainstream aerosol circulated from the aerosol generating segment through the filter segment. A change of flavor may be triggered through a specific clicking pattern of the activator switch, e.g. a dual click, a prolonged click, or the like.

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In another preferred embodiment the smoking article comprises a protection element such as a protection ring. Preferably the device comprises at least two protection elements and especially protection rings, wherein the releaser is located between these protection elements in the longitudinal direction of the smoking article.

In another preferred embodiment, the flavor releaser comprises a first atomizer and especially an electrically driven first atomizer. In another preferred embodiment of the invention, this atomizer extends in the longitudinal direction of the smoking article but occupies only a part of the cross section. In this embodiment, it is possible that another part of the cross section is occupied by an area of the filter segment and/or the filter segment itself.

In another preferred embodiment, the smoking article comprises a flow sensor. This flow sensor can serve to measure the flow through the filter. Especially, the flow sensor can recognize a user making a puff. Especially the flow sensor can also sense the direction of a flow. In another preferred embodiment, the flow sensor is suited to output a signal, which is characteristic of a flow through the aerosol generating segment and/ or the filter segment.

In another preferred embodiment the flow sensor is located between the aerosol generating segment and the at least one atomizer.

In another preferred embodiment, the flavor releaser comprises a second atomizer. Preferably, this second atomizer can be arranged in the same area of the smoking article with respect to the longitudinal direction of the smoking article. In a very preferred embodiment, this second atomizer is arranged parallel to the above mentioned first atomizer. Preferably, also the second atomizer can be actuated by a user. In a very preferred embodiment, it is possible that the user selectively activates one or the other atomizer.

In another preferred embodiment, the first atomizer and the second atomizer can be selectively activated.

Preferably the filter segment comprises at least 2 or more segments, wherein the flavor releaser forms one of said segments or is comprised in between said two segments.

In another preferred embodiment, the smoking article comprises at least one indicator to indicate a state of the flavor releaser. Therefore, for example the indicator can indicate if an atomizer or also what atomizer is activated. Preferably, the indicator comprises at least one light emitting element and especially a light emitting diode. In a preferred embodiment, this light emitting diode or in general the light emitting element is visible around the essentially

complete circumference of the smoking article so as to be visible by a user whatever the orientation of the device.

Especially, it is possible that a light source like an LED is used and a light guiding channel,
5 which extends at least partially, preferably around more than half of the circumference of the smoking article.

This light emitting element as mentioned above can not only indicate if an atomizer is switched on or off but it can also indicate the chosen flavor. Preferably, the light emitting element
10 can output different light indications, for example light rays of different colors.

In another preferred embodiment, the smoking article of the invention comprises a mouth end section of the filter segment comprising a center hole. Such mouth end section advantageously provides more consistent and concentrated delivery of flavored mainstream smoke
15 going through the flavor releaser to a user.

In another preferred embodiment the smoking article, and the flavor releaser in particular, comprises a battery to power the at least one atomizer. It may also further comprise a micro-processor to control said at least one atomizer.

In another preferred embodiment the flavor releaser of the smoking article of the invention comprises a flow channel for the smoke. Preferably this flow channel extends at least partially adjacent to the at least one atomizer.

Therefor the flavor releaser in form of an electronic device is preferably integrated as a filter segment into a standard filter segment and especially a multi segment filter. This flavor releaser can be integrated in the filter segment of the smoking article in the course of a standard filter making process, in particular in a filter combiner.

In a preferred embodiment the flavor releaser has preferably a cylindrical shape, still preferably of substantially equal diameter as the filter segment so as to provide a filter segment of substantially constant diameter and circumference.

Further embodiments or advantages of the invention will become apparent from the following description of a preferred embodiment of a smoking article according to the present invention given in reference to the accompanying figures, which show:

5 Fig. 1 a schematic view of an aerosol generating device in the form of a smoking article according to the invention; and

Fig. 2 a schematic view of the vapor releaser for a smoking article according to the invention as represented in fig. 1.

10 Figure 1 shows the schematic view of a smoking article according to the invention. This smoking article comprises an aerosol generating segment 4 which comprises an aerosol generating material. Reference numeral 2 refers to a filter segment. This filter segment comprises a first filter subsection 22 and a second filter subsection 24. Between these two filter subsections 22, 24 a flavor releaser 6 is inserted. This flavor releaser 6 comprises an atomizer 64, and an illumination device 8. The reference numeral 28 is directed to a mouth piece of the smoking article 10.

According to the present invention, the aerosol generating segment 4 comprises aerosol generating material including tobacco, in particular tobacco cut-filler and/or reconstituted tobacco. The aerosol generating material in the smoking article 10 of the invention may not
20 comprise only liquid tobacco extract, nor nicotine containing liquids, as the case may be in commercially available e-liquids for electronic cigarettes.

Therefore the smoking article 10 of the current invention may preferably be comprising real
25 tobacco material in as aerosol generating material. It may be a smoking article such as a cigarette, wherein the aerosol generating segment comprises a rod of tobacco cut-filler wrapped in a paper sleeve as aerosol generating material. It may also be a heat-not-burn stick, wherein the aerosol generating segment comprises a rod of reconstituted tobacco material wrapped in a holding sleeve of paper as aerosol generating material.

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Figure 2 shows a more detailed view of the flavor releaser 6. This flavor releaser 6 comprises a first atomizer 64 and a second atomizer 68. These atomizers 64 and 68 are arranged adjacent to one another and extend in the longitudinal direction L of the flavor releaser 6 and also

the smoking article. The arrow P indicates the flow direction of an aerosol issuing from heating of the aerosol generating material in the aerosol generating segment 4 inside the smoking article. The smoke here may also flow between the two atomizers 64 and 68.

- 5 The reference numerals 36 and 38 relate to protection elements and especially protection rings which protect the devices between those protection elements especially from mechanical stress.

10 Reference numeral 65 is directed to a heating device and especially a heating coil which serves to vaporize the flavors. The heating coil is connected to a power source, such as a battery 32 such that the atomizers 64 and 68 and especially the liquid contained in these atomizers can be heated separately. Therefor the user can choose which atomizer he wants to activate.

- 15 Reference numeral 62 is directed to an activator element such as a switch and especially a membrane switch. This membrane switch 62 extends in a circumferential direction around the longitudinal direction L of the flavor releaser.

20 The reference numeral 70 refers to a wrapping element, for example a foil or a paper element, which surrounds the flavour releaser. The atomizer 64 and 68 may contain liquid.

Reference numeral 66 refers to an airflow sensor which here is located between the atomizers 64, 68 and the aerosol generating segment 4 which would continue on the right side of the figure.

25 Illumination device 8 is advantageously provided indicate a state of the smoking article 10, and particularly of its atomizers, when one or both of the atomizers 64 and 68 are activated. Reference numeral 34 refers to a microprocessor to control the unit and especially the atomizers 64, 68 and as well the illumination device 8.

30 Use of the smoking article 10 according to the present invention is extremely simple for a user as described below.

Where the smoking article is a cigarette, a user just needs to light up the free end of the tobacco rod forming the aerosol generating segment 4 as with a standard cigarette and to draw a puff from the mouth end section of the filter segment 2. Whenever the user wants to flavour the smoke drawn through the filter it just needs pressing with its fingers onto the membrane switch 62 to activate the flavour releaser 6. Upon next puff the airflow sensor 66 will detect a flow of mainstream smoke passing through the flavour releaser and will automatically power one or both of the atomizers 64, 68, in a similar fashion as existing e-cigarette, to release a flavoured vapor into the mainstream smoke airflow going towards the filter mouth end section and the user. This provides a very effective and instant flavouring of the smoke for a user. If the user wishes to stop the flavouring, it just needs to press again on the switch 62 to power off the flavour releaser 6.

Where the smoking article is a heat-not-burn stick, the principle remains identical as with a cigarette, except that the user will not light up the aerosol generating segment 4 but insert it into a heating device cavity, such as known from commercially available heat-not-burn devices, and then actuate said device to heat the aerosol generating segment 4 to generate tobacco vapor inhalable from the filter segment 2.

Then whenever the user wants to flavour the vapor drawn through the filter it just needs pressing with its fingers onto the membrane switch 62 to activate the flavour releaser 6. Upon next puff the airflow sensor 66 will detect a flow of mainstream smoke passing through the flavour releaser and will automatically power one or both of the atomizers 64, 68, in a similar fashion as existing e-cigarette, to release a flavoured vapor into the mainstream smoke airflow going towards the filter mouth end section and the user. If the user wishes to stop the flavouring, it just needs to press again on the switch 62 to power off the flavour releaser 6.

Reference signs

	2	filter section
	4	smoking section
5	6	flavor releaser
	8	illumination device
	10	smoking article
	22	subsection of the filter section
	24	subsection of the filter section
10	26	mouth piece
	32	battery
	34	microprocessor
	36, 38	protection element
	62	activator, switch
15	64	atomizer
	65	heater
	66	airflow sensor
	68	atomizer
	70	wrapping element
20		
	L	longitudinal direction
	P	arrow

Smoking article with electronic flavor releaser

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Patent claims

1. A smoking article (10) with a filter segment (2) and an aerosol generating segment (4) aerosol generating material, preferably comprising tobacco,
characterized in that
10 the smoking article (10) comprises an electronic flavor releaser (6), which allows the release of flavors, wherein the electronic flavor releaser (6) also allows the passage of an aerosol arising from the aerosol generating segment (4) and wherein the flavor releaser (6) is inserted inside the filter segment (2) or adjacent to the filter segment (2).
15
2. Smoking article (10) according to claim 1,
characterized in that
the flavor releaser comprises an activator (62) that allows a user to activate and/or deactivate the flavor releaser (6).
20
3. Smoking article (10) according to the claim 1 or 2,
characterized in that
the activator comprises a switch, which can be manually actuated, wherein this switch is arranged on an outer circumference of the smoking article (10)
25
4. Smoking article (10) according to at least one of the preceding claims,
characterized in that
the flavor releaser comprises a first atomizer (64) and especially an electrically powered atomizer (64).
30
5. Smoking article (10) according to the preceding claim,
characterized in that
the flavor releaser comprises an energy storage and especially a battery (32).

6. Smoking article (10) according to at least one of the preceding claims,
characterized in that
the Smoking article comprises a flow sensor (66).
- 5 7. Smoking article (10) according to the preceding claim
characterized in that
the atomizer (64) is controlled by the flow sensor.
- 10 8. Smoking article (10) according to claim 4,
characterized in that
the flavor releaser (6) comprises a second atomizer (68).
- 15 9. Smoking article (10) according to the preceding claim,
characterized in that
the first atomizer (64) and the second atomizer (68) can be selectively activated.
- 20 10. Smoking article (10) according to at least one of the preceding claims,
characterized in that
the smoking article (10) comprises at least one indicator (8) to indicate a state of the
releaser (6).
- 25 11. Smoking article according to at least one of the preceding claims,
characterized in that
the filter segment comprises filter material arranged at least at a mouth end, the elec-
tronic flavor releaser being arranged between said aerosol generating segment and
said mouth end section.
- 30 12. Smoking article according to claim 11,
characterized in that
said filter material at the mouth end has a tubular shape.
13. Smoking article (10) according to at least one of the preceding claims,
characterized in that

the smoking article (10) comprises two protection elements (36, 38) wherein the flavor releaser is located between these two protection elements.

14. Smoking article (10) according to at least one of the preceding claims,

5

characterized in that

the flavor releaser has a cylindrical shape and especially a regular cylindrical shape.

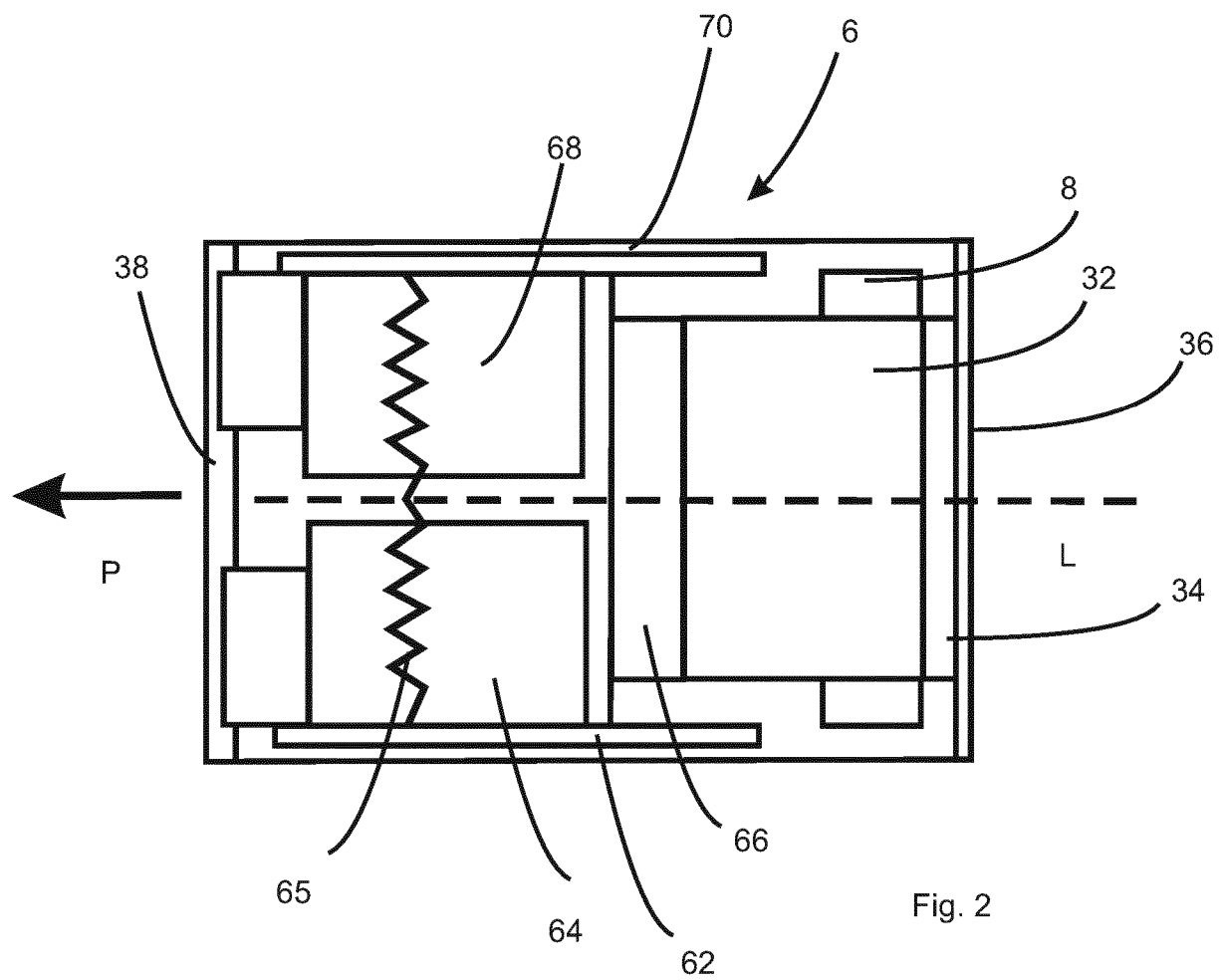
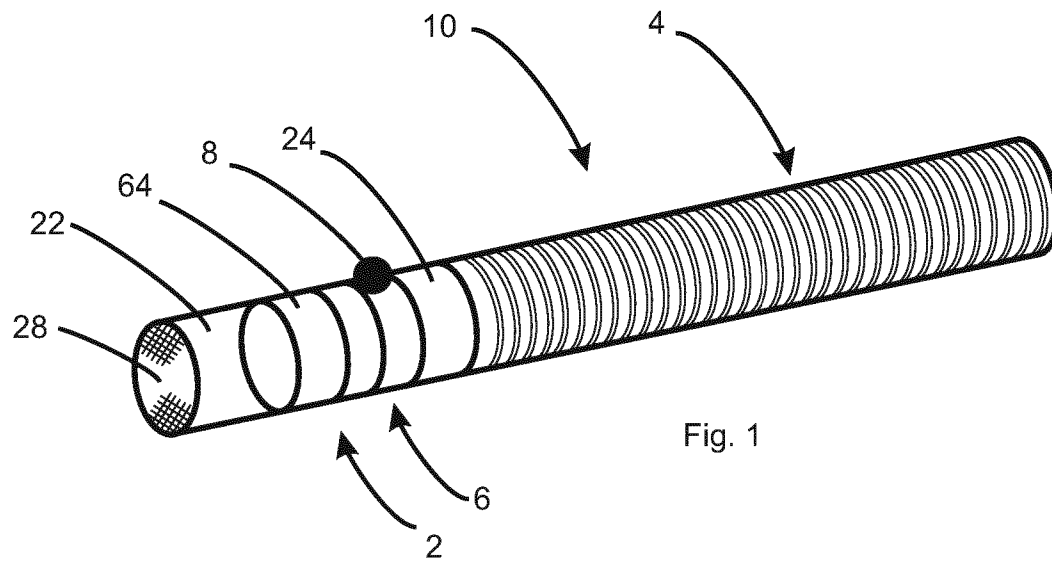
15. Electronic flavor releaser for a smoking article, configured to allow the release of flavors within an aerosol stream circulated from an inlet of the electronic flavor releaser to an outlet thereof,

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characterized in that

the flavor releaser comprises an activator that allows a user to activate and/or deactivate the flavor releaser, wherein the activator comprises a switch which can be manually actuated.

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INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2020/057430

A. CLASSIFICATION OF SUBJECT MATTER INV. A24D1/00 A24D3/04 A24D3/06 A24F47/00 A24F40/00 A24F40/30 ADD. According to International Patent Classification (IPC) or to both national classification and IPC											
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) A24D A24B A24F Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) EPO-Internal, WPI Data											
C. DOCUMENTS CONSIDERED TO BE RELEVANT <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%; padding: 5px;">Category*</th> <th style="width: 70%; padding: 5px;">Citation of document, with indication, where appropriate, of the relevant passages</th> <th style="width: 20%; padding: 5px;">Relevant to claim No.</th> </tr> </thead> <tbody> <tr> <td style="text-align: center; vertical-align: top; padding: 5px;">X</td> <td style="padding: 5px;"> WO 2019/016535 A1 (BRITISH AMERICAN TOBACCO INVESTMENTS LTD [GB]) 24 January 2019 (2019-01-24) page 22, line 9 - page 24, line 6 page 5, line 14 - line 25 ----- </td> <td style="text-align: center; vertical-align: top; padding: 5px;">1-15</td> </tr> <tr> <td style="text-align: center; vertical-align: top; padding: 5px;">X</td> <td style="padding: 5px;"> EP 0 430 566 A2 (PHILIP MORRIS [US]) 5 June 1991 (1991-06-05) column 2, line 34 - column 6, line 8; claims 1-3 ----- </td> <td style="text-align: center; vertical-align: top; padding: 5px;">1-15</td> </tr> </tbody> </table>			Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	X	WO 2019/016535 A1 (BRITISH AMERICAN TOBACCO INVESTMENTS LTD [GB]) 24 January 2019 (2019-01-24) page 22, line 9 - page 24, line 6 page 5, line 14 - line 25 -----	1-15	X	EP 0 430 566 A2 (PHILIP MORRIS [US]) 5 June 1991 (1991-06-05) column 2, line 34 - column 6, line 8; claims 1-3 -----	1-15
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.									
X	WO 2019/016535 A1 (BRITISH AMERICAN TOBACCO INVESTMENTS LTD [GB]) 24 January 2019 (2019-01-24) page 22, line 9 - page 24, line 6 page 5, line 14 - line 25 -----	1-15									
X	EP 0 430 566 A2 (PHILIP MORRIS [US]) 5 June 1991 (1991-06-05) column 2, line 34 - column 6, line 8; claims 1-3 -----	1-15									
☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.											
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Date of the actual completion of the international search 18 June 2020	Date of mailing of the international search report 02/07/2020										
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Coniglio, Carlo										

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

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