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**Datasheet for the decision  
of 15 January 2024**

**Case Number:** T 0463/22 - 3.2.01

**Application Number:** 10793150.3

**Publication Number:** 2503912

**IPC:** A24F47/00

**Language of the proceedings:** EN

**Title of invention:**

AN ELECTRICALLY HEATED SMOKING SYSTEM WITH INTERNAL OR  
EXTERNAL HEATER

**Patent Proprietor:**

Philip Morris Products S.A.

**Opponents:**

JT International S.A.  
Nicoventures Trading Limited

**Headword:**

**Relevant legal provisions:**

EPC Art. 100(b), 100(a), 100(c), 54, 56, 123(2), 84  
RPBA Art. 13(1)

**Keyword:**

Grounds for opposition - insufficiency of disclosure (no)  
Novelty - auxiliary request 1-3 (yes) - main request (yes)  
Inventive step - main request (no) - auxiliary requests 1-2  
(no) - auxiliary request 3 (yes)  
Amendments - allowable (yes)  
Late-filed argument - admitted (yes)  
Claims - clarity (yes)

**Decisions cited:**

G 0003/14

**Catchword:**



**Beschwerdekammern**  
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Case Number: T 0463/22 - 3.2.01

**D E C I S I O N**  
**of Technical Board of Appeal 3.2.01**  
**of 15 January 2024**

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**Decision under appeal:** **Decision of the Opposition Division of the  
European Patent Office posted on 3 January 2022  
rejecting the opposition filed against European  
patent No. 2503912 pursuant to Article 101(2)  
EPC.**

**Composition of the Board:**

<b>Chairman</b>	G. Pricolo
<b>Members:</b>	S. Mangin
	M. Millet

## **Summary of Facts and Submissions**

- I. The appeals were filed by the appellants 1 and 2 (opponents 1 and 2 respectively) against the decision of the opposition division to reject the oppositions filed against the patent in suit (hereinafter "the patent").
- II. The opposition division held that:
- the invention was disclosed in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art,
  - the subject-matter of claims 1 and 7-11 did not extend beyond the content of the application as filed,
  - the subject-matter of claim 1 was novel and involved an inventive step.
- III. Oral proceedings were held before the Board on 15 January 2023.
- IV. The appellant 1 (opponent 1) requested that the decision under appeal be set aside and that the European patent No. 2503912 be revoked.
- The appellant 2 (opponent 2) requested that the decision under appeal be set aside and that the European patent No. 2503912 be revoked.
- The respondent (patent proprietor) requested that the appeals be dismissed as a main request, or in the alternative that the patent be maintained on the basis of one of the auxiliary requests 1-11.

- V. Claim 1 of the main request with the feature numbering used in the appealed decision reads as follows:
- a) An electrically heated smoking system for receiving an aerosol-forming substrate the system comprising an aerosol-forming substrate and a heater for heating the substrate to form the aerosol, the heater comprising a heating element,
  - b) wherein the electrically heated smoking system and the heating element are arranged such that, when the aerosol-forming substrate is received in the electrically heated smoking system, the heating element extends a distance only partially along the length of the aerosol-forming substrate,
  - c) and the heating element is positioned towards the downstream end of the aerosol-forming substrate,
  - d) wherein the ratio of the distance that the heating element extends along the aerosol-forming substrate, to the length of the aerosol-forming substrate, is between 0.35 and 0.6,
  - e) characterised in that the downstream end of the heating element is upstream of the downstream end of the aerosol-forming substrate by a distance equal to or greater than 1 mm.
- VI. Claim 1 of auxiliary request 1 corresponds to claim 1 of the main request with the following additional feature:
- "the length of the aerosol-forming substrate is substantially parallel to airflow direction in the electrically heated smoking system".*
- VII. Claim 1 of auxiliary request 2 corresponds to claim 1 of the auxiliary request 1 specifying that:

*"the length of the aerosol-forming substrate is substantially parallel to airflow direction, in use, in the electrically heated smoking system".*

VIII. Claim 1 of auxiliary request 3 corresponds to claim 1 of the main request specifying that the heating element *"extends fully or substantially fully around the circumference of the aerosol-forming substrate (105, 205)".*

IX. In the present decision, reference is made to the following documents:

E1: US 5 915 387 A  
E2: EP 0 438 862 A2  
E3: WO 00/28842 A1  
E4: EP 2 113 178 A1  
E11: US 7 117 967 B2  
E12: WO 00/28843 A1  
E13: US 5 269 327 A

## **Reasons for the Decision**

1. Main request - Insufficiency of disclosure - Article 100(b) EPC

During oral proceedings, the parties referred to their written submissions. The Board has thus no reason to deviate from its preliminary opinion expressed in the notification under Article 15(1) RPBA 2020, according to which the invention is disclosed in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art.

1.1 Appellants 1 and 2 raised the following objections:

The patent only disclosed an embodiment using a resistive heating around the solid aerosol-forming substrate. However, a patent must teach the skilled person how to obtain substantially all embodiments falling within the ambit of the claims. This requirement was not met for:

- a liquid or gas aerosol-forming substrate, which would not act as a filtration zone in the same way as a solid aerosol-forming and would not provide the technical effect of the alleged invention set out in paragraph [0008] without further modifications;
- an infra-red heating element, a photonic source or an inductive heating element, which implementation were very different and which would require different extent;
- internal heater: the skilled person was not in the position to implement without undue burden the internal heating element that did not extend to the upstream/downstream ends of the substrate, because it was not understood how electrical power could be delivered to the heating element inside the substrate with the claimed geometrical constraints in the electrically heated smoking system.

This lack of disclosure concerned specifically claimed embodiments - e.g. the combination of claims 1, 3 and 13 directed to embodiments having a liquid aerosol forming substrate and an internal heater. The patent did not disclose a single example of how to implement an embodiment having a liquid or gas aerosol-forming substrate and an internal heater, let alone substantially all such embodiments.

Furthermore claim 3 directed to a heating element arranged to be inserted into the aerosol forming substrate was dependent on claim 2 wherein the heating element extended fully around the circumference of the aerosol forming substrate, leading to a heater which was simultaneously internal and external.

Finally claim 13 directed to the aerosol-forming substrate being a liquid substrate depended on claim 12 wherein the aerosol-forming substrate was a solid substrate.

- 1.2 The Board is not convinced by the arguments of the appellants.
  - 1.2.1 As pointed out by the respondent, the objections of lack of sufficiency of claims 3 and 13 were not raised during the opposition proceedings and are rather objections of lack of clarity than of sufficiency of disclosure. Indeed the skilled person knows that if the heating element extends fully around the circumference of the aerosol forming substrate, it is not inserted into the aerosol forming substrate and vice versa. Similarly if the aerosol forming substrate is a liquid substrate it is not a solid substrate and vice versa. So whether or not the new objections are admitted into the appeal proceedings, these objections do not justify a lack of sufficiency of disclosure of the invention.
  - 1.2.2 As for the invention not being sufficiently disclosed for a liquid or gas aerosol-forming substrate, for an infra-red heating element, a photonic source or an inductive heating element and for an internal heater, the appellants have failed to provide any evidence of their allegations. Moreover, if the liquid or gas aerosol-forming substrate does not act as a filtration

zone in the same way as a solid aerosol-forming substrate and does not provide the technical effect of the alleged invention set out in paragraph [0008], this is not an issue under sufficiency of disclosure as the effect is not claimed. Similarly if the extent of an infra-red heating element, a photonic source or an inductive heating element as claimed does not provide the effect of minimising the risk of condensation of the aerosol in the smoking system and minimising the heat loss through non-tobacco materials this is not an issue under sufficiency of disclosure as the effect is not claimed.

2. Main request - Inventive step - Article 100(a) EPC

The subject-matter of claim 1 does not involve an inventive step starting from E1.

2.1 Appellant 1 (opponent 1) argued that the subject-matter of claim 1 was not novel over E1 and in any event not inventive in view of E1.

2.1.1 E1 disclosed in column 21, lines 15-24 a cigarette having:

- a 32 mm rod, and
- a 12 mm long heater footprint being centered at the midpoint of the tobacco rod.

Furthermore, the first column of table 2 in column 21 disclosed:

- a 4 mm void length
- a 1 mm overlap of the heater with the void, and
- an 11 mm heater overlap along the tobacco plug.

Taking the tobacco material 70 applied to the base web 68 as the aerosol forming substrate (and not the

tobacco plug 80), appellant 1 came to the conclusion that the above-mentioned embodiment anticipated all the features of claim 1 and in particular, features c, d and e of claim 1.

- 2.1.2 In particular, appellant 1 submitted that the above-mentioned embodiment disclosed feature c (*"the heating element is positioned towards the downstream end of the aerosol-forming substrate"*).

In their view, considering the tolerances and the characteristics of any physical system, the heater footprint could not be exactly at the midpoint of the tobacco rod, but would be positioned slightly towards the downstream end or towards the upstream end of the tobacco rod. Hence, the above passage of E1 disclosed both the case in which the heater footprint (corresponding to the "heating element" of claim 1) was positioned towards the downstream end of the tobacco rod (corresponding to the "aerosol forming substrate" of claim 1) and the case in which the heater footprint was positioned towards the upstream end of the tobacco rod. Hence, also feature c was disclosed.

Appellant 1 added that some of the finished products would have their heating elements towards the downstream end of the aerosol-forming substrate because of the manufacturing tolerances and the way the cigarette was inserted into the lighter.

- 2.1.3 However should the feature of the heating element being positioned towards the downstream end of the aerosol-forming substrate (feature c) be considered not to be disclosed in E1, then the alleged difference between the claimed subject-matter and the prior art would amount to an infinitesimal displacement of the heater

footprint. No technical effect could be recognised and, accordingly, no inventive step.

Furthermore, E1 provided a motivation and a suggestion for altering the location of the footprint such that it would be obvious to design one which fell under the definition of feature c. The passage at column 4, lines 14-44 of E1 disclosed providing a larger overlap of the heater footprint on the non-filled portion relative to the filled portion to suit a brand where greater "immediacy" was required and less "dominating flavour and character to the smoke" was desired. Hence, it would be an obvious design choice to shift the heating element of E1 (see reference 94 in figure 4A) towards the void of the cigarette (see reference 91 in figure 4A) and, hence, towards the downstream end of the aerosol-forming substrate, depending on the desired smoking experience as expressly suggested by E1.

2.1.4 Finally appellant 1 disagreed with the opposition division that the heater footprint 94 in figure 4A did not correspond to the heater element of claim 1.

Claim 1 of the opposed patent defined "the heater comprising a heating element". Hence, the definition of claim 1 encompassed a "heater" that was a larger entity compared to the "heating element", as the "heater" included the "heating element" and possibly other elements (e.g. a structure supporting the heating element or conductive portions to supply electrical power to the heating element). Not all of the structure defined by 37, 183 and 184 in figure 3 of E1 corresponded to the "heating element" of claim 1 of the opposed patent. The structure identified by references 37, 183 and 184 in figure 3 of E1 corresponded to the "heater" of claim 1, while the "heating element" was

comprised in the "heater", i.e. was a part of the "heater" according to the claim. Specifically, in E1 the "heating element" comprised in the "heater" was the part of the heater that was expected to reach the operative heating temperature, i.e. the part of the heater that corresponded to the footprint 94 as described at column 10 lines 26-44 of E1: *"the heater footprint 94 is not part of the cigarette structure itself, but instead is a representation of that region of the tobacco rod where the heater element 37 would be expected to reach operative heating temperatures during smoking of the cigarette"*.

2.2 The respondent (patent proprietor) contested the lack of novelty over E1 and inventive step starting from E1. In their view appellant 1 was combining different embodiments of E1, which in any event did not disclose feature c and was not rendered obvious. Furthermore, the heater footprint 94 of figure 4A could not be considered as the heating element of claim 1.

2.2.1 Appellant 1 was combining figure 4A disclosing the aerosol forming substrate 70, with column 21 for the rest of the features.

2.2.2 Furthermore, column 21, lines 19-24 of E1 disclosed that "the heater footprint was 12 cm long and centered at the midpoint of the tobacco rod of each cigarette". Anything which was centered could not be considered to be positioned towards the downstream end (or towards any end, for that matter). Column 21, line 44-46 confirmed that the footprint was centered at the midpoint of the tobacco rod in each of the embodiments of Table II. Hence, this disclosure failed to show the requirements of feature c of claim 1.

Moreover, the skilled person would not shift the heater element towards the downstream end of the aerosol forming substrate as E1 taught away from such measure. Indeed, column 11, lines 34-47 taught the skilled person that the heater footprint should not be too close to the free flow filter 74 to avoid heating it during smoking.

- 2.2.3 Finally, figure 3 of E1 disclosed a heater fixture 39 which included heater elements 37, leads 183 and a common ring 184. Each heater element 37 was a unitary structure formed of electrically resistive material (column 6, lines 15-16 and Fig. 3), which was entirely heated. The skilled person would readily appreciate, therefore, that it could only be an entire heater element 37 which might correspond to a heating element, as required by claim 1.

Therefore, neither the heater footprint 94 nor the portion 92 of the heater element 37 (see figure 4A) was the heating element required by claim 1. Instead, it was one of the heater elements 37 which corresponded to the heating element of claim 1. The heater element 37 was larger than and extended along the whole surface of the tobacco web 66 (relied upon by the appellants (opponents) as the aerosol forming substrate required by claim 1) and hence none of features b, c, d and e were disclosed in E1.

- 2.3 The Board agrees with the respondent (patent proprietor) that the subject-matter of claim 1 is novel over E1 as it does not disclose directly and unambiguously feature c. However, as argued by appellant 1, the subject-matter of claim 1 is obvious in view of the teaching of E1 alone.

- 2.3.1 Firstly, it is to be noted that appellant 2 does not combine different embodiments of E1 to arrive to its conclusion. Column 21 cited by appellant 1 refers at lines 17-18 to a cigarette constructed in accordance with cigarette 23, which is the one depicted on figures 4 and 4a.
- 2.3.2 Secondly, as argued by both appellants, the heater footprint 94 is to be considered as the heating element of claim 1. While the term "heating element" in E1 encompasses the serpentine part and the two straight parts on each side of the serpentine (figure 3), only the portion which reaches operative heating temperature is to be considered. Indeed claim 1 and in particular the parameters expressed in features c, d and e would be meaningless if the heater element in claim 1 was to be construed as including every part of the heater, such as those elements or portions of that do not reach operative heating temperature.
- 2.3.3 Thirdly, feature c is not directly an unambiguously disclosed in E1. Indeed, column 21, lines 23-24 discloses that the heater footprint is "centered at the midpoint of the tobacco rod of each cigarette". While there may be small variations in the position of the heating element over the aerosol-forming substrate due to the manufacturing tolerances and/or the insertion of the cigarette, this cannot be considered as a direct an unambiguous disclosure of feature c even if the heating element might be slightly shifted towards the downward end or towards the upstream end of the aerosol forming substrate.
- 2.3.4 However, E1 (column 4, lines 23-43) teaches the skilled person that increasing the overlap of the heater element with the void increases the immediacy of the

aerosol forming substrate delivery. Indeed the tobacco material 70 immediately releases tobacco aerosol while the tobacco plug 80, because of its greater mass of tobacco, releases tobacco aerosol with a slight delay. Therefore the skilled person looking to increase the immediacy of the aerosol forming substrate delivery, would shift the heater footprint towards the downstream side of the aerosol forming substrate and would thereby arrive at the subject-matter of claim 1.

The Board is not convinced by the argument of the respondent that E1 teaches the skilled person away from shifting the heating element towards the downstream end of the aerosol forming substrate to avoid the free-flow filter 74 from heating during smoking. The Board notes that feature c is very broad as it requires the heating element to be positioned towards the downstream end of the aerosol forming substrate without specifying any measurement, such that the heater could be shifted only a relatively small distance to arrive at the subject-matter of claim 1. Furthermore, column 11, lines 41-42 discloses that *"the void 91 might be configured as short as approximately 4 mm or less"*. The skilled person starting from the embodiment disclosed in column 1 of table II, wanting to increase the immediacy of the aerosol delivery would thus not be discouraged from shifting the heating elements towards the downstream end of the aerosol forming substrate, i.e. towards the free flow filter as the skilled person is taught that a void smaller than 4 mm may be acceptable.

3. Auxiliary requests 1 and 2

No submission was made by the parties during oral proceedings regarding auxiliary requests 1 and 2. In its notification pursuant Article 15(1) RPBA 2020, the

Board noted that auxiliary requests 1 and 2 did not appear to render the subject-matter of claim 1 inventive over E1. The Board has no reason to change its preliminary opinion which is confirmed below.

Indeed claim 1 of auxiliary request 1 requires that *"the length of the aerosol-forming substrate is substantially parallel to airflow direction in the electrically heated smoking system"* and claim 1 of auxiliary request 2 specifies that it should be *"in use"*.

As notes by the appellants, these features are disclosed in E1 as can be seen in figure 4A. The length of the heater footprint 94 is substantially parallel to airflow which will flow in the longitudinal direction of the cigarette.

This finding is not contested by the respondent, who referred to their submissions made for the main request for the novelty and inventive step of auxiliary requests 1 and 2.

Therefore, the subject-matter of claim 1 of auxiliary requests 1 and 2 does not involve an inventive step over E1 alone for the same reasons as for claim 1 of the main request.

4. Auxiliary request 3

Claim 1 of auxiliary request 3 corresponds to claim 1 of the main request wherein the heating element *"extends fully or substantially fully around the circumference of the aerosol-forming substrate (105, 205)"*.

#### 4.1 Clarity - Article 84 EPC

Claim 1 itself is clear; as regards its inconsistency with claim 2, it cannot be examined for compliance with Article 84 EPC as the inconsistency is not caused by the amendment made (G 3/14).

4.1.1 With their letter of 10 January 2023, appellant 2 (opponent 2) raised clarity objections against claim 1. They argued that it was not clear for the skilled person what would constitute "substantially fully around" as compared to "fully around". Normally the phrase "substantially around" would be taken to include "fully around".

The inclusion of "fully around" as a separate option to "substantially around" introduced a new doubt as to the meaning of "substantially around" that was not present in the granted claims (because the contrasting option of "fully around" was not present in the granted claims). In essence, it was not clear what was meant by "substantially around" when it did not include "fully around". The skilled person did not know the boundary of the claim. There was no particular technical function associated with this feature, and so it could not be considered that needing to achieve a particular effect could be used to help define the scope of the feature. The patent also did not explain how to measure the closeness to fully around.

The "fully around" alternative in claim 1 (which as noted above did not come from granted claim 1 but page 2, lines 13-14 of the description) also introduced a lack of clarity in respect of claim 2. Claim 2 depended on claim 1 and required that the heating element was arranged to be inserted into the aerosol-forming substrate. It was not clear how the heating element

could be arranged to be inserted into the aerosol-forming substrate, as required by claim 2, when the heating element extended fully around the circumference of the aerosol-forming substrate, as required by claim 1.

- 4.1.2 The respondent refuted the clarity objections. They argued that appellant 2 failed to make any clarity objections in its grounds of appeal with respect to the auxiliary request 3. Therefore, the clarity objections against auxiliary request 3 raised with letter of 10 January 2023 should not be admitted into the proceedings pursuant to Article 13(1) RPBA 2020 as they constituted an amendment to the appellant 2's appeal case made after they had filed their grounds of appeal without providing any reasons for not raising the objections at an earlier stage of the proceedings.

Furthermore, the respondent argued that claim 1 could not be examined for compliance with Article 84 EPC as the amendment made to claim 1 did not introduce non-compliance with Article 84 EPC (G 3/14). Appellant 2' attempted to circumvent this rule by alleging that the phrase "substantially fully around" had been altered by inclusion of the phrase "fully around". This was not the case as the meaning of the phrase "substantially fully around" remained unchanged.

- 4.1.3 The Board admits the clarity objections in the appeal proceedings raised by appellant 2.

(a) Article 13(1) RPBA 2020 reads:

*"Any amendment to a party's appeal case after it has filed its grounds of appeal or reply is subject to the party's justification for its amendment and may be admitted only at the discretion of the Board".*

Appellant 2 raised the clarity objections against auxiliary request 3 with letter of 10 January 2023, after the respondent (proprietor)'s reply to the ground of statement of grounds of appeal dated 21 September 2022 in which they submitted the auxiliary requests 1-11 they intended to defend in appeal proceedings. These clarity objections cannot be considered as an amendment of appellant 2's appeal case as they were filed within a reasonable time in response to the reply of the respondent. Before the reply, the appellants did not know which auxiliary requests the respondent would file in appeal procedure; in particular they could not assume with certainty that the patent proprietor would maintain the auxiliary requests filed in first instance proceedings.

(b) The order of G4/13 reads:

*"In considering whether, for the purposes of Article 101(3) EPC, a patent as amended meets the requirements of the EPC, the claims of the patent may be examined for compliance with the requirements of Article 84 EPC only when, and then only to the extent that the amendment introduces non-compliance with Article 84 EPC".*

The heating element extending *"fully or substantially fully around the circumference of the aerosol-forming substrate"* is equivalent to the heating element extending *"substantially fully around the circumference of the aerosol-forming substrate"*. As argued by appellant 2, and contrary to the respondent's view, in the present context the expression *"substantially fully"* encompasses *"fully"*. In fact *"substantially"* is to be understood in the present context as

"approximately", whereby "approximately fully" does not exclude "fully".

Therefore, both alternatives were already encompassed by the subject-matter of claim 1. Only the redundancy of the heating element fully extending around the circumference may be examined.

This redundancy does not lead to the subject-matter of claim 1 being unclear under Article 84 EPC. Indeed unlike appellant 2's allegation the skilled person will not change its understanding of the expression "substantially fully" in the expression "fully or substantially fully". The claimed subject-matter remains the same.

The heating element of claim 1 extends fully around the circumference of the aerosol forming substrate with a tolerance that would be accepted by the skilled person in the manufacturing field to represent a heater extending over the full circumference of the aerosol forming substrate.

As for the incompatibility between the subject-matter of claims 1 and 2, this was already present in claim 1 and is thus not subject to examination with regard to its compliance with article 84 EPC (G 3/14). Indeed the heating element cannot be both:

- extending "*substantially fully around the circumference of the aerosol-forming substrate*" which encompasses the alternative "fully" now recited into claim 1 and
- "*arranged to be inserted into the aerosol forming substrate*".

4.2 Inventive step starting from E1.

The subject-matter of claim 1 involves an inventive step starting from E1.

- 4.2.1 The appellants argued that E1 (figure 3) disclosed a heating element that extended fully or substantially fully around the circumference of the aerosol-forming substrate.

The appellants submitted that the added feature defined two alternatives, as the heating element extending "substantially fully" around the circumference of the aerosol-forming substrate necessarily covered cases in which the heating element did not extend fully around the circumference of the aerosol-forming substrate. Hence, claim 1 of auxiliary request 3 covered also the case in which some gaps or interruption were present in the extension of the heating element around the circumference of the aerosol-forming substrate. This was also confirmed by figures 3 and 4 of the opposed patent that showed examples of heating elements featuring gaps along a circumferential direction (i.e. "around the circumference") of the aerosol-forming substrate.

The appellants considered the heating element to include the eight circumferentially spaced-apart heating elements 37 which were concentrically aligned with the receptacle 27 and of serpentine form (see lines 1-5 of column 7). In their view the heating element (i.e. the portion of the heater corresponding to the footprint 94) of E1 extended substantially fully around the aerosol-generating substrate 60.

- 4.2.2 Should the heating element of E1 not be considered as fully or essentially fully extending around the

aerosol-generating substrate, the appellants argued that no inventive step could be established, because the arrangement of the heating element defined by the claim would merely amount to a design option available to the skilled person (see e.g. the heater 30 surrounding the substrate 1 in E3 or the heating element 209 surrounding substrate 207 in E4).

4.3 The Board is not convinced by the arguments brought forward by the appellants.

As argued by the respondent, E1 does not disclose a heating element which extends fully or essentially fully around the circumference of the aerosol forming substrate, instead the heating elements in E1 extend along the cigarette. It is only the combination of the eight heating elements that extend around the circumference of the aerosol forming substrate, however, not fully or substantially fully around the circumference of the aerosol forming substrate. Indeed gaps between the heating elements are present. Furthermore there is no disclosure in E1 to minimise these gaps.

The Board notes that figure 3 of the patent shows a gap between the electrical connections A and B, but column 16, lines 38-43, discloses that *"the gap between the two terminals A and B has been exaggerated for the sake of clarity. However, the gap or spacing between the two terminal is preferably as small as possible, whilst not permitting an electrical short circuit between the two terminals"*. As to figure 4, the heating element is laid out flat, such that no conclusion can be made about the circumference of the heating element around the aerosol-forming substrate.

A heating element extending fully or essentially fully around the circumference of the aerosol forming substrate enables a heating of essentially the entire circumference of the aerosol-forming substrate. The problem to be solved may be considered as to provide a uniform heating of the aerosol forming substrate around its circumference.

Starting from E1 comprising longitudinal heating elements along the circumference of the aerosol forming substrate, there is no incentive for the skilled person to modify the heater to have the heating elements extending fully or substantially fully around the circumference of the aerosol forming substrate like in E3 (cylindrical heating surface 30 of figure 1) or E4 (heating coil 209 in figures 2 and 3). Indeed, in E1, the arrangement of the longitudinally extending heating elements around circumference of the aerosol forming substrate enables that one or more of the heating elements may be activated to thermally release a predetermined quantity of tobacco aerosol from the cigarette. Reference is made to E1, column 3, lines 25-31, column 4, lines 19-23, column 7, lines 16-23. Changing the heater of E1 with the heaters disclosed in E3 or E4 would no longer allow this characteristic sought in E1 to be obtained.

#### 4.4 Novelty and inventive step in view of E2, E12 and E13

During oral proceedings, the appellants referred to their written submissions as regard the objections of novelty and inventive step in view of E2, E12 and E13.

##### 4.4.1 For document E2, appellant 2 considered a sub-group of segments 7a in figure 4 in combination with figure 7a

for the heating element to arrive at the subject-matter of claim 1.

The Board concurs with the opposition division and the respondent that the heating segment of the heating element in E2 heats one at a time such that they cannot be combined to form a heating element in the sense of the heating element of claim 1.

Furthermore, appellant 2 combines the embodiment of figure 4 and the embodiment of figure 7a to arrive at the heating element extending fully or substantially fully around the aerosol forming substrate.

Finally no measurements of the heating element and the heating segments and no measurements of the aerosol forming substrate are disclosed. Appellant 2 uses the schematic drawings to conclude that features c, d and e are disclosed in E2. However the drawings do not amount to a direct and unambiguous disclosure for the skilled person, who would know that those drawings are merely schematic views from which, in the absence of any specifications, no specific dimensions can be derived.

The subject-matter of claim 1 is therefore novel over E2 and also not obvious in view thereof.

4.5 For document E12, appellant 2 considered a sub-group of the heater segments of figure 2b to form the heating element to arrive at the subject-matter of claim 1.

However, the arbitrary selection of conductive zones made by appellant 2 to arrive at the subject matter of claim 1 is not disclosed in E12. Furthermore no measurements are given in E12 which would enable the skilled person to derive directly and unambiguously features C, d and e.

The subject-matter of claim 1 is therefore novel over E12 and also not obvious in view thereof.

4.6 For document E13, appellant 1 considers the embodiment of figure 7H or in the alternative the embodiment of figure 7G comprising 2 individual charges of aerosol forming tobacco.

However, E13 does not disclose a structure with two charges as argued by appellant 1. E13 discloses that there are e.g. 8-10 charges on column 3, lines 38-43. Furthermore in Figure 7H, the structure 77 is an extruded rod made solely of tobacco flavor medium and components to add mechanical strength. The distance that the heating element extends along the extruded rod, to the length of the extruded rod is not disclosed but appears to be much smaller than the claimed ratio in feature d. In figure 7G, the structure 76 is similar to structure 72 comprising 10 charges.

Therefore feature d (*"the ratio of the distance that the heating element extends along the aerosol-forming substrate, to the length of the aerosol-forming substrate, being between 0.35 and 0.6"*) is not disclosed in these embodiments.

Finally the heating element in figures 7H and 7G are slidable (E13, column 7, lines 39-49), such that features c and d are not always fulfilled during use.

The subject-matter of claim is therefore novel over E13 and also not obvious in view thereof.

4.7 Added subject-matter

Claim 1 does not extend beyond the content of the application as originally filed.

Claim 1 of auxiliary request 3 is a combination of claims 1, 2, 4, and 7 as filed with the addition of "the system comprising an aerosol-forming substrate" and the alternative of the heating element extending "fully" around the circumference of the aerosol forming substrate.

4.8 Appellants 1 and 2 raised the following objections:

4.8.1 The application as originally filed did not disclose an electrically heated smoking system that comprised an aerosol-forming substrate and at the same time was suitable for receiving an aerosol-forming substrate, as defined in claim 1 of the patent.

The application as originally filed did not disclose that the electrically heated smoking system comprised an aerosol-forming substrate. It only disclosed the electrically heated smoking system and the aerosol-forming substrate as components which were separate from each other. From the clear wording of claim 1 there was no doubt that it defined a system which (a) comprised an aerosol-forming substrate; and (b) was suitable for receiving an aerosol-forming substrate. There was no such system disclosed in the application as originally filed, and so claim 1 contained added matter. There was no reason for the skilled person to conclude from the wording of the claim (use of indefinite articles) or from a technical point of view (E11 for example comprised more than one aerosol-forming substrate) that the two separate references to "an aerosol-forming substrate" should be interpreted as referring to the same aerosol-forming substrate.

4.8.2 The application as originally filed also did not disclose an arrangement having a second heating element

in combination with a first heating element which extended along the aerosol-forming substrate by a distance that was between 0.35 and 0.6 of the length of the aerosol-forming substrate (as claimed in claim 7, and its dependent claims 8 to 11). The application as originally filed comprised two main embodiments. A first embodiment included one heater (see figure 1) and a second embodiment included two heaters (see figure 2). The ratio of the distance that the heating element extended along the aerosol-forming substrate to the length of the aerosol-forming substrate between 0.35 and 0.6 was only disclosed in the application as originally filed for the first embodiment including one heater (this range was included in original claim 7 and disclosed in the second complete paragraph on page 4 and the last complete paragraph on page 12). There was no disclosure of a first heating element having this extent in the embodiment which included two heaters.

- 4.8.3 Appellant 2 further argued that the introduction in claim 1 of the heating element extending fully or substantially fully around the circumference of the aerosol forming substrate added matter because it represented a two-fold selection from a list that was not pointed to in the application as originally filed.

The application as originally filed disclosed a number of ways in which a heating element might extend around the circumference of an aerosol-forming substrate, namely:

- fully around (page 2, line 14)
- partially around (page 2, line 14)
- substantially fully around (page 2, line 15)
- substantially partially around (page 4, penultimate line)
- not around at all (page 11, lines 6 to 7)

There was no pointer that would lead the skilled person to conclude that the application as filed disclosed the two-fold selection needed to arrive at the combination of options of fully around and substantially fully around according to this amendment. Indeed, the substantially fully around option was noteworthy for being one of the few options in the application as originally filed which was not said to be preferred.

- 4.9 The Board is not convinced by the appellants' arguments.
- 4.9.1 Claim 1 reciting: *"An electrically heated smoking system (103, 203) for receiving an aerosol-forming substrate (105, 205) the system comprising an aerosol forming substrate"* refers to the same aerosol-forming substrate, which the electrically heated smoking system can receive and is in receipt. Furthermore, in the application as filed, page 2, lines 22-24 and page 3, lines 4-5 of the description as well as figures 1 and 2 disclose an electrically heated smoking system comprising an aerosol-forming substrate. The skilled person is therefore not presented with new technical information.
- 4.9.2 Furthermore, following the description of the electrically heated smoking system comprising a heater for heating the substrate to form an aerosol, the heater comprising a heating element, page 4, last paragraph of the application as filed reads: *"In one embodiment of the electrically heated smoking system, the heater further comprises a second heating element arranged, when the aerosol-forming substrate is received in the electrically heated smoking system: to extend a distance  $y$  only partially along the length  $l$*

*of the aerosol-forming substrate; and to be upstream of the first heating element".*

The skilled person is therefore taught that the embodiment with the heater comprising one heating element described above wherein,

- *"preferably, the downstream end of the heating element is upstream of the downstream end of the aerosol-forming substrate by a distance  $d$  equal to, or greater than approximately 1 mm"* (page 3, fifth paragraph) and

- *"preferably having the ratio of the distance  $w$ , that the heating element extends along the aerosol-forming substrate, to the length  $l$  of the aerosol-forming substrate ( $w/l$ ) between 0.35 and approximately 0.6"* (page 4, third paragraph)

may comprise a second heating element.

Therefore, the subject-matter of claim 7 does not present the skilled person with new information.

Similarly,

- claim 8 finds basis in the first sentence of the fourth paragraph on page 5 of the application as filed,
- claim 9, in the first sentence of the fifth paragraph on page 5,
- claim 10, in the second sentence of the fifth paragraph on page 5, and
- claim 11 in the third paragraph on page 6.

4.9.3 Finally, no selection has been made to arrive at the heating element extending *"fully or substantially fully around the circumference of the aerosol-forming substrate"*. Indeed as stated above original claim 2 already comprises the two alternatives with the wording *"substantially fully around the circumference of the aerosol forming substrate"* which encompasses *"fully around the circumference of the aerosol forming substrate"*.

5. To conclude, the claims according to auxiliary request 3 comply with the requirements of the EPC.
6. The description as amended during the oral proceedings is in conformity with the set of claims according to auxiliary request 3. In fact, no objections were raised by the appellants in this respect.

## **Order**

### **For these reasons it is decided that:**

The decision under appeal is set aside.

The case is remitted to the opposition division with the order to maintain the patent in amended form on the basis of the following documents:

- claims 1-12 of auxiliary request 3 filed with the reply to the grounds of appeal dated 22 September 2022,
- description: columns 1-6 and 9-10 submitted during oral proceedings and columns 7, 8, and 11-19 according to the patent specification, and
- figures 1-11 of the patent as granted.

The Registrar:

The Chairman:



H. Jenney

G. Pricolo

Decision electronically authenticated