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Datasheet for the decision of 20 February 2025

Case Number: T 1828/22 - 3.2.01

Application Number: 16757167.8

Publication Number: 3334300

IPC: A24F47/00, A61M15/06

Language of the proceedings: EN

Title of invention:
POWER SUPPLY SECTION CONFIGURATION FOR AN ELECTRONIC VAPING DEVICE AND ELECTRONIC VAPING DEVICE

Patent Proprietor:
Philip Morris Products S.A.

Opponent:
Nicoventures Trading Limited

Headword:

Relevant legal provisions:
EPC Art. 54, 54(3), 56, 100(a), 100(b), 100(c)

Keyword:
Added subject-matter (no)
Sufficiency of disclosure (yes)
Novelty (yes)
Inventive step (yes)

Decisions cited:

Catchword:

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Chambres de recours

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Case Number: T 1828/22 - 3.2.01

D E C I S I O N
of Technical Board of Appeal 3.2.01
of 20 February 2025

Appellant: (Opponent)	Nicoventures Trading Limited Globe House 1 Water Street London WC2R 3LA (GB)
Representative:	D Young & Co LLP 3 Noble Street London EC2V 7BQ (GB)
Respondent: (Patent Proprietor)	Philip Morris Products S.A. Quai Jeanrenaud 3 2000 Neuchâtel (CH)
Representative:	Grünecker Patent- und Rechtsanwälte PartG mbB Leopoldstraße 4 80802 München (DE)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 27 May 2022 rejecting the opposition filed against European patent No. 3334300 pursuant to Article 101(2) EPC.**

Composition of the Board:

Chairman	G. Pricolo
Members:	B. Spitzer
	M. Millet

Summary of Facts and Submissions

I. The opponent appealed the decision of the opposition division to reject the opposition filed against the European patent No. 3 334 300.

II. The opposition had been filed against the patent as a whole on the basis of the grounds for opposition under Article 100(a) EPC together with Article 54 EPC (lack of novelty) and Article 56 EPC (lack of inventive step), under Article 100(b) EPC and Article 100(c) EPC.

III. The documents cited in this decision include the following:

D1: US2014/0261486
D2: WO2016/186859
D3: US2010/0242974
D4: WO2015/130598
D6: Document convolute for public prior use "Vuse Solo" as of 14 March 2025 by R.J. Reynolds Vapor Company

IV. Oral proceedings before the Board were held on 20 February 2025 by videoconference.

V. The appellant (opponent) requested that the decision under appeal be set aside and that the patent be revoked.

The respondent (patent proprietor) requested that the appeal be dismissed (main request), or, in the alternative, that the patent be maintained in amended form based on one of the auxiliary requests 1 – 22

filed with their reply on 14 February 2023.

VI. Independent claims 1 and 14 as granted read as follows:

"1. **[F1.a]** A power supply section (75) for an e-vaping device (100), comprising:
[F1.b] a sensor (40) **[F1.c]** housed in a housing;
[F1.d]a sensor holder (35) holding the sensor (40),
[F1.e] the sensor holder (35) disposed in the housing to divide the housing into a first portion (68) and a second portion (70), **[F1.f]** the sensor (40) and the sensor holder (35) configured to prevent air flow between the first portion (68) into the second portion (70), **[F1.g]** wherein the sensor holder (35) is a hollow structure having a first dimension section (35a) and a second dimension section (35b), **[F1.h]** the first dimension section (35a) defining a first cavity having a least a first dimension, **[F1.i]** the second dimension section (35b) defining a second cavity having a least a second dimension, **[F1.j]** the second cavity corresponding to a shape of the sensor (40), and **[F1.k]** the first dimension being smaller than the second dimension; and **[F1.l]** a power source (64) disposed in the second portion (70)."

"14. An e-vaping device (100), comprising:
a cartomizer (25) including a liquid reservoir (22) holding a liquid, a mouthpiece and a heater configured to heat the liquid; and
a power supply section (75) removably connected to the cartomizer (25) via a connector and including
a sensor (40) housed in a housing,
a sensor holder(35) holding the sensor (40), the sensor holder (35) disposed in the housing to divide the housing into a first portion (68) and a second portion (70), the sensor (40) and the sensor holder (35) are

configured to prevent air flow from the first portion (68) into the second portion (70), wherein the sensor holder (35) is a hollow structure having a first dimension section (35a) and a second dimension section (35b), the first dimension section (35a) defining a first cavity having a least a first dimension, the second dimension section (35b) defining a second cavity having a least a second dimension, the second cavity corresponding to a shape of the sensor (40), and the first dimension being smaller than the second dimension, and a power source (64) disposed in the second portion (70) and configured to supply power to the heater."

VII. The parties' arguments, where relevant to this decision, can be summarised as follows.

(a) Added subject-matter (Ground for opposition under Article 100(c) EPC)

(i) Appellant

Claim 1 contained added subject-matter due to the deletion of the term "substantially" as a qualifier to the "substantially prevent".

The application as filed only ever used the term "substantially" to qualify "prevent", and thus there was no general disclosure of air flowbeing absolutely prevented from passing between the first portion and the second portion. The terms "substantially prevent" and "prevent" were not synonyms. Furthermore, the opposition division's view that "substantially prevent" encompassed both possibilities of "entirely prevent" (prevent without substantially) and "partially prevent" (prevent with substantially) was incorrect.

The application as filed did not provide a general disclosure of entirely preventing air flow between the first and second portions. The concept of "substantially prevent" was not divisible into a hypothetical hierarchy of prevention. In addition, the specific and narrow extent of "entirely prevent" was not directly and unambiguously individualised by the more general "substantially prevent".

(ii) Respondent

The term "prevent" was sometimes used to imply complete prevention, but in reality, it was known that complete prevention was not actually achieved. The appellant's interpretation that "substantially prevent" excluded the possibility that air flow was "prevented" was not supported by the application as filed. As explained on page 2, lines 1 to 3 of the application as filed, "substantially prevent" had to be construed by the skilled person in the sense of "preventing air flow to the best achievable degree", thereby certainly including the possibility that air flow was entirely prevented. Deleting the word "substantially" did not extend the subject-matter of the patent beyond the content of the application as filed, as stated in the decision of the opposition division.

(b) Sufficiency of disclosure (Ground for opposition under Article 100(b) EPC)

(i) Appellant

The patent did not sufficiently describe how to implement the alleged invention and so contravened Article 83 EPC and Article 100(b) EPC.

The patent as granted did not provide any general teaching as to how to entirely prevent air flow between the first and second portions when the second cavity merely corresponded to a shape of the sensor. There was no explicit limitation regarding the sensor being of any particular shape when compared to the sensor holder. According to granted claim 1, the sensor simply needed to be held by the sensor holder. Thus, this claim covered a wide range of sensor and sensor holder configurations that were not enabled because granted claim 1 suggested total prevention of airflow. This could be achieved by any configuration falling into the broader and indeterminate scope of the "correspondence" of the shape of the second cavity to the puff sensor. The opposition division came to the incorrect conclusion on Article 83 EPC by essentially interpreting out the non-enabled parts of the claim, i.e., all those cavity/sensor shapes which "corresponded", but did not "match". Contrary to the respondent's allegations, Figure 3E of the patent did not provide an enabling disclosure of how "correspondence" between the shape of the second cavity and the puff sensor could prevent air flow between the first and second portions of the device, since the term "correspondence" was used only once in the application as filed, and not in conjunction with any of the detailed embodiments, let alone the embodiment shown in Figure 3E.

(ii) Respondent

The combination of the sensor holder and the sensor held within the holder prevented air flow between the first and second portions. This was assisted by the shape of the sensor "corresponding to" (i.e. matching) the shape of the second cavity of the sensor holder.

This was e.g. shown in Figure 3E and in Figure 2 of the patent (except that in Figure 2 the reference numeral 40 should point at the hatched box within the puff sensor holder 35). Furthermore, the assessment of sufficiency had to be based on the patent's disclosure as a whole. The patent provided ample guidance on how to carry out the invention. For example, paragraphs [0023], [0045] and [0048] proposed that the sensor and the sensor holder formed a seal "*that substantially hermetically isolates the sensing portion 68 from the power source portion 70*". Accordingly, as correctly assessed by the opposition division, the skilled person had sufficient information on how to carry out the invention as claimed.

(c) Novelty (Ground for opposition under Article 100(a) EPC in combination with Article 54 EPC)

(i) Appellant

The subject-matter of claims 1 and 14 was not new vis-à-vis documents D2, D3, D4 and the prior use "Vuse Solo" (document convolute D6).

Concerning document D4, one point of dispute was which element of the electronic vaping (e-vaping) device had to be considered the sensor holder.

Since feature F1.d of granted claim 1 only defined a sensor holder as holding the sensor, it did not exclude the presence of a further sensor holder. According to paragraph [0042] of the patent, the puff sensor "*is held in place via the puff sensor holder 35*". According to paragraph [0040] of the patent, "*[t]he puff sensor holder 35 holds or supports a puff sensor 40*".

Paragraph [0043] of the patent disclosed in addition projections which held the puff sensor holder in place.

In document D4, the sensor 308 was attached to the electronic circuit board 306 which was interconnected with the coupler through an intermediate attachment (see document D4, page 19, lines 14 to 18). The sealing member 380 was in physical contact with the shell 301 (see document D4, page 21, lines 19 to 20) and surrounded the pressure sensor 380 (see document D4, page 20, lines 20 to 21). Thus, the sealing member also contributed to holding the sensor.

Therefore, the sealing element 380 of document D4 could be considered a sensor holder, either on its own or together with the electronic circuit board 306. It was not necessary for the sealing element 380 and the electronic circuit board 306 to contact each other to perform a holding function.

The sealing member 380 had two cavities with different dimensions: one larger second cavity that housed the sensor, and a smaller first cavity that was connected to the pressure channel 385.

Consequently, features F1.d, F1.e, F1.g to F1.k of granted claim 1 were disclosed by document D4.

Another point of dispute was the sealing between the first and second portions of the housing to prevent air flow between these portions, according to feature F1.f. This was realised in document D4 by the sensor, the electronic circuit board and the sealing member (see document D4, Figures 5, 6A and 6B; page 19, lines 29 to 34; page 20, lines 24 to 31; page 21, lines 4 to 8 and lines 22 to 26). The pressure sensor was in contact

with the reduced pressure side via channel 385 and with the normal pressure side via aperture 307. Contrary to the respondent's allegations, no additional air channel existed, as ambient air entered through lateral openings 388 and channel 389.

Therefore, feature F1.f of granted claim 1 was also disclosed in document D4. The remaining features were not disputed.

The e-vaping device "Vuse Solo" of the prior use, as evidenced by document convolute D6, was technically identical to that of document D4. Therefore, the same arguments applied as brought forward in the context of document D4.

In document D2, the sensor 5108 was attached to the printed circuit board (PCB) 5106. However, it was not correct to consider only the PCB as sensor holder, since the function of the sensor holder was to hold the sensor in place relative to the housing. Consequently, the sensor holder in document D2 comprised the base unit (reference sign 424 in Figure 4 and 524 in Figure 5), together with the support plate 537 and the PCB 5106. Document D2, page 21, lines 28 to 29 explicitly disclosed that "*the base unit can include one or both of the control compartment and a pressure sensor*". The support plate 537 was part of the base unit 424/524 and together they formed an air-tight relationship (see document D2, page 21, lines 36 to page 22, line 3). Furthermore, document D2, page 22, lines 3 to 4 stated that "*[t]he sensor 5108 may pass through the support plate 537 so as to be at least partially positioned within the cavity 525 of the base unit 524.*" Therefore, features F1.b to F1.f were anticipated by document D2.

The base unit, together with the support plate and the PCB, formed a hollow structure in which the first dimension section was the chimney part of the base unit, and the second dimension section was the skirt part of the base unit. Since the sensor passed through the support plate (see document D2, page 22, lines 3 to 4), the second cavity corresponded to a shape of the sensor as defined by feature F1.j. The second cavity corresponding to the shape of the sensor did not mean that they had to match. Nonetheless, the opening of the sensor in the support plate matched the outline of the sensor due to the air-tight relationship (see document D2, page 22, lines 1 to 3). Therefore, features F1.g to F1.k were also disclosed in document D2. The remaining features were not disputed.

The embodiments of Figure 4 and Figure 5 of document D3 anticipated the subject-matter of granted claim 1. The disputed features were features F1.f and F1.j of granted claim 1.

With regard to feature F1.f, both embodiments of Figures 4 and 5 of document D3, as well as the patent, were structured in the same way, i.e. included vents at the distal end, comprised a sensor seated within a seal/sensor holder which completely spanned the barrel of the device, and included a corresponding power section (see document D3, Figures 4 and 5; see patent, Figure 2). The sensor and the seal/sensor holder of both document D3 and the patent would prevent air flow between the power section and the cartomizer section. Document D3 did not teach air flow passing through the entire device, but explicitly disclosed a sensor supporter/sensor completely spanning the internal diameter of the device in Figure 4 and a sealing

element in Figure 5. It was not correct that, in document D3, the air had to flow through the sensor, particularly, when the sensor was a diaphragm microphone as disclosed in claim 4 of document D3. The skilled person would recognise that air did flow through the holes in the cap simply to allow pressure equalisation in the otherwise sealed inhaler tube.

Feature F1.j was also anticipated by document D3, as Figure 4 shows a precise matching between the sensor and sensor holder 61. In Figure 5 of document D3, sensor 6 resided within a second cavity (which also housed the component 14), and the shape of this cavity corresponded to that of the sensor.

(ii) Respondent

The subject-matter of claims 1 and 14 was new vis-à-vis documents D2, D3, D4 and the prior use "Vuse Solo" (document D6).

Document D4 was prior art under Article 54(3) EPC.

In document D4, the sensor 308 was directly attached to the electronic circuit board 306 (see document D4, page 18, line 21 and page 20, line 14). Therefore, the electronic circuit board functions as the sensor holder. Thus, features F1.e to F1.k were not disclosed by document D4.

The electronic circuit board 306 did not even contact the sealing element 380 (see document D4, page 20, lines 20 to 21). Therefore, neither these two elements together nor the sealing element alone could be considered a sensor holder. Furthermore, the sealing member 380 primarily served a sealing function whereas

the electronic circuit board served the holding function.

Furthermore, even if the electronic circuit board and the sealing member together were considered the sensor holder, feature F1.f was not disclosed, as pressure balancing via the free air passage (shown by the grey line in the drawing below) was essential for the e-vaping device to function properly.

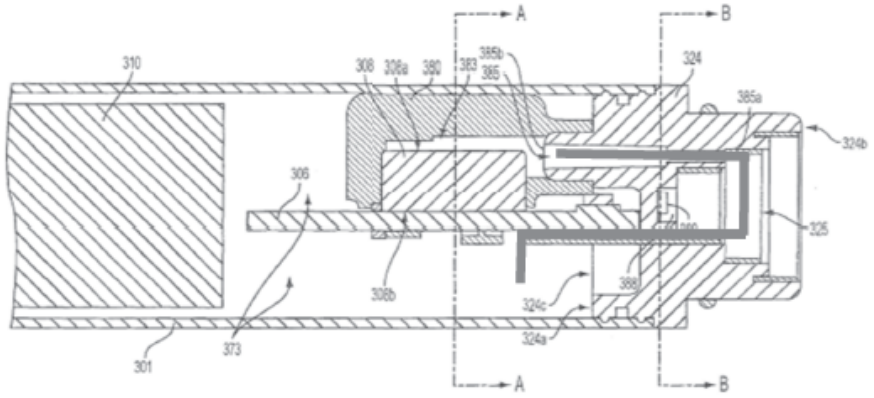


Figure 5 of document D4 with marked passage of air according to the respondent (see page 10 of respondent's reply in opposition and page 11 in respondent's reply in appeal)

With respect to the technical features, the same arguments apply for the prior use "Vuse Solo" (see document convulute D6). However, the prior use was not sufficiently substantiated and was therefore not accepted as prior art.

Document D2 was prior art under Article 54(3) EPC. In document D2, the sensor 5108 was fixed to the PCB 5106. Therefore, the PCB 5106 was the sensor holder. The PCB did not have any cavity. Hence, at least features F1.g to F1.k were not disclosed in document D2.

Even if the base unit together with the support plate were considered a sensor holder, feature F1.j would still not be disclosed, as the shape of the skirt of the base unit did not correspond to the shape of the sensor. If the opening of the sensor in the support plate were identified as the second dimension, then feature F1.k would not be disclosed. In either of the two interpretations, the subject-matter of claim 1 was novel vis-à-vis document D2.

Document D3 did not disclose feature F1.f of granted claim 1. For the e-vaping device of document D3 to function, it was essential that the air entering through the cap 13 could flow along the power section, through the sensor 6, and into the cartomizer section (see document D3, paragraphs [0012], [0030], [0032], [0035], [0036]; Figures 4 and 5). There was no other way for air to enter the interior of the e-cigarette except through the cap 13 at the distal end of the e-vaping device.

The air vents 65 of the patent, mentioned by the appellant, were not air inlets as in document D3 but instead allowed excess gas to exit from the power source portion. Moreover, the sensor holder 61 in Figure 4 and the seal piece 25 in Figure 5 of document D3 did not divide the housing into two separate portions while preventing air flow between them; rather they helped to concentrate the air flow at the sensor.

The sensor 6 in document D3 was not a pressure sensor but a flow sensor. Even if it was a diaphragm microphone, it measured the air flow (see document D3, dependent claim 4). Without air flow through the entire electronic inhaler section, the device of document D3 would be inoperable.

Furthermore, no disclosure of feature F1.j could be derived from document D3. There was no literal disclosure, and the drawings were only schematic. With respect to the embodiment of Figure 4, document D3 disclosed in paragraph [0030] that "the electric airflow sensor 6 is assembled onto the sensor supporter 61". With respect to the embodiment of Figure 5, the same words "onto" were repeated in paragraph [0034] of document D3. In the embodiment of Figure 5 of document D3, the "seal piece 25" could not be construed as a "sensor holder" in the sense of the patent.

(d) Inventive step (Ground for opposition under Article 100(a) EPC in combination with Article 56 EPC)

(i) Appellant

The subject-matter of granted claims 1 and 14 was not inventive over a combination of documents D3 and D1.

According to paragraph [0008] of the patent, the technical effect of the distinguishing feature F1.f was the avoidance of mixing potentially harmful battery cell outgas with the vaporized liquid inhaled by the user. Accordingly, the objective technical problem was how to design an e-vaping device so that inhaled air was prevented from passing by the battery. The person skilled in the art would have turned to document D1, which was from the same technical field. Additionally, paragraph [0069] of document D1 addressed the same objective technical problem and proposed providing structural elements to isolate one or more components from the air flowing from the air intake to the opening at the mouth end.

In Figure 1 of document D1, air flow entered via air intake 17 and passed sensor 30. In document D1 as well as in Figures 4 and 5 of document D3, the battery was located upstream of the sensor. Therefore, the configuration of the battery and sensor was the same in documents D3 and D1.

Seeing then the teaching in document D1 to avoid air flow in the vicinity of the battery, and the specific teaching in document D1 to use a structural component to isolate the battery, the skilled person would have understood that the sensor holder 61 and the sensor 6 of document D3 should prevent the air flow between the first and second sections.

Indeed, no other structural changes would have been required, as the aperture 13 allowed one side of the sensor to access ambient pressure, and an aperture in the sensor holder 61 against the sensor allowed the sensor to access reduced pressure. Moreover, document D3 described the use of an air flow sensor in general, thus encompassing sensors triggered by pressure differential, such as the diaphragm microphone disclosed in dependent claim 4 of document D3. Therefore, there was no need to select a new sensor that was not already encompassed by document D3.

Document D3 also disclosed structural elements like the sensor holder 61 and/or the sealing piece 25 to separate the compartments. Therefore, the person skilled in the art would have adjusted the air flow path in document D3 accordingly. In particular, the person skilled in the art would have shifted the air inlet from the cap to a location beyond the structural elements and would have arrived at the claimed

solution. It did not matter whether document D1 disclosed features F1.f precisely. Rather, the motivation by document D1 would have led the skilled person to change document D3 so that feature F1.f was present.

(ii) Respondent

The subject-matter of granted claims 1 and 14 was inventive over a combination of documents D3 and D1.

In document D3, the air flow through the entire device, and thus also through sensor 6, was essential for the functioning of the e-vaping device. Even using a diaphragm microphone as the sensor, air flow was necessary to activate the sensor and, in turn, the heater. Otherwise, the e-vaping device would not function.

Document D1 taught in paragraph [0069] to isolate the air flow. However, document D1 did not teach how to achieve this effect. Document D1 did not disclose a sensor holder and the related features, F1.e to F1.k of granted claim 1. Since there was no sensor holder in document D1, there could not have been any motivation, based on document D1, to modify the sensor mounting arrangement disclosed in document D3.

Moreover, the person skilled in the art would not have been motivated to depart from the functional principle in document D3 and to modify the air flow as proposed by the appellant. The "isolation of one or more components" from the air flow, as suggested by document D1, was not a "one-way-street"; rather several alternatives, such as a housing for the battery, existed to achieve such isolation. The person skilled

in the art would not have deviated from the device of document D1. In particular, a major re-design of the device of document D3 would have been necessary, e.g. blocking off the hole in element 61, adding another opening above the element 61, re-arranging the CPU, and using a different sensor.

In conclusion, starting from document D3, the skilled person would not have reached the subject-matter of granted claims 1 and 14 without an inventive activity, even with potential knowledge of document D1.

Reasons for the Decision

1. Added subject-matter (Ground for opposition under Article 100(c) EPC)

1.1 The appellant argued that deleting the term "substantially" as a qualifier from "substantially prevent" in granted claim 1 resulted in subject-matter extending beyond the content of the application as filed.

1.2 The opposition division held that the amendments to granted claim 1 did not extend beyond the disclosure of the application as filed (see decision under appeal, Reasons, point 13.2).

1.3 The Board arrives at the same conclusion as the opposition division. This also applies for the subject-matter of granted claim 14.

1.4 While the Board acknowledges the appellant's observations that the term "prevent" in the application as filed is consistently qualified by "substantially", in the Board's view there is a basis for its deletion.

In particular, the passage on page 2, lines 1 to 3 of the application as filed - cited by the respondent - states: "*As a result of the separation of compartments between the sensor and power supply, the inhaled air may be substantially preventing [sic!] from passing over the power supply. Thus, the inhaled vapor will not mix with the gasses released from the battery cell*". The Board agrees with the respondent that with this teaching the person skilled in the art interprets the term "substantially prevent" in the sense of "preventing air flow to the best achievable degree" and thereby including the possibility that air flow is prevented. Hence, it is not necessary to consider a hypothetical hierarchy of different degrees of prevention or the replacement of a general term by a specific meaning.

1.5 Conclusion on added subject-matter

In light of the above, the subject-matter of granted claim 1 and equally of granted claim 14 does not contain subject-matter which extends beyond the content of the application as filed. The ground for opposition under Article 100(c) EPC does not prejudice the maintenance of the patent as granted.

2. Sufficiency of disclosure (Ground for opposition under Article 100(b) EPC)

2.1 The opposition division held that the patent disclosed the invention in a manner sufficiently clear and complete for a skilled person to carry it out (see decision under appeal, Reasons, points 16 and 16.1).

2.2 The Board shares the opposition division's finding that the patent as a whole provides sufficient information

on how to carry out the invention.

2.3 Sufficiency of disclosure within the meaning of Article 83 EPC or the related ground for opposition under Article 100(b) EPC must be assessed on the basis of the application as a whole (see Case Law of the Boards of Appeal of the European Patent Office, 10th edition, July 2022, II.C.1.).

2.4 In the present case, paragraph [0045] of the patent describes a puff sensor holder and a puff sensor that "*form a seal configured to substantially hermetically isolate the power source portion from the sensing portion*". Paragraph [0046] of the patent further explains that the space defined within the sensor holder matches the shape of the sensor such that the sensor can be snugly and substantially hermetically seated in the sensor holder.

2.5 The Board sees no reason why the skilled person would be unable to reproduce a sensor holder in which the sensor is seated "*substantially hermetically*". This requires that the sensor's geometry matches the cross-section of the cavity, as illustrated in Figure 3E of the patent, which shows an example where the "*second cavity corresponds to a shape of the sensor*". A skilled person would have no difficulties in reproducing such a sensor holder/sensor-combination, separating the battery from the sensor part so that the sensor arranged within the sensor holder prevents air flow.

2.6 Conclusion on sufficiency of disclosure

In summary, the claimed invention is disclosed in a manner sufficiently clear and complete for it to be carried out by the person skilled in the art. The

ground for opposition under Article 100(b) EPC does not prejudice the maintenance of the patent as granted.

3. Novelty (Ground for opposition under Article 100(a) EPC in combination with Article 54 EPC)

3.1 Novelty of the subject-matter of granted claim 1 vis-à-vis document D4

3.1.1 Document D4 is prior art under Article 54(3) EPC.

3.1.2 The opposition division concluded that the subject-matter of granted claim 1 was new over document D4 (see decision under appeal, Reasons, point 22.3).
Document D4 disclosed a pressure sensor 308 on an electronic circuit board 306 with a sealing member 380 dividing the interior of the housing into a pressure reduction space 383 and a normal pressure space 373. However, regardless of whether the sensor holder in document D4 was considered the sealing member 380, the electronic circuit board 306, the coupler 324, or any combination of these elements, in the opposition division's view, there was no direct and unambiguous disclosure that the prevention of air flow between the first portion into the second portion - as disclosed in document D4 on page 20, lines 3 to 7 - was carried out by the sensor and the sensor holder. Therefore, according to the opposition division at least feature F1.f was not disclosed.

3.1.3 The Board, aligning with the respondent, views the electronic circuit board 306 to be the sensor holder, as the sensor 308 is directly attached to the electronic circuit board 306 (see document D4, page 18, line 21 and page 20, line 14).

3.1.4 According to feature F1.d of granted claim 1, a sensor holder is defined by its function as holding the sensor. As noted by the appellant, the patent does not further specify the sensor holder (see patent, paragraphs [0040] and [0042]).

3.1.5 The Board rejects the appellant's argument that the sealing member 380, alone or in combination with the electronic circuit board 306, qualified as sensor holder. While the sealing member 380 is in physical contact with the shell 301 and surrounds the top and perimeter of the pressure sensor, its function is to create an air tight seal around the first end 308a of the pressure sensor 308 and the second end 385b of the pressure channel 385 (see document D4, page 21, lines 19 to 20 and page 20, lines 20 to 21; Figure 5). Document D4 does not disclose a holding function for the sealing member.

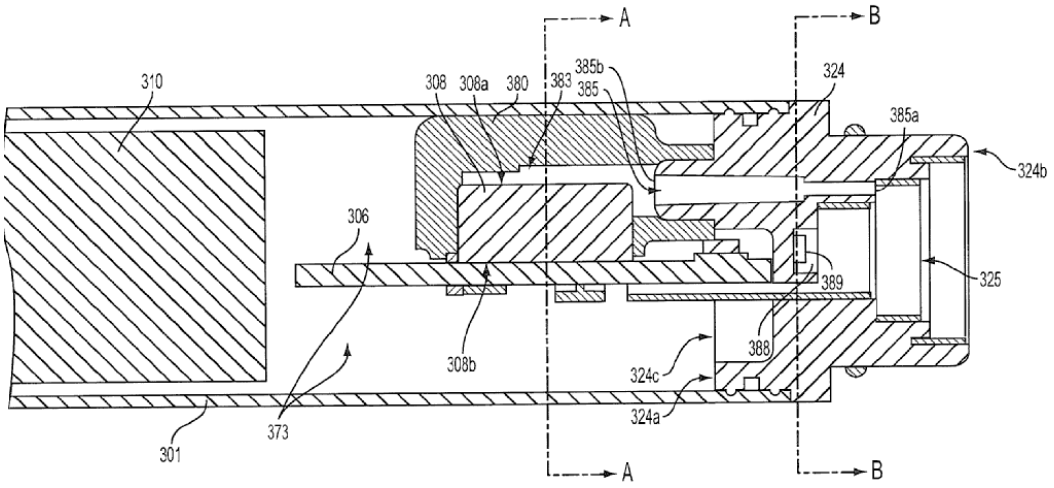


FIG. 5

Figure 5 of document D4

3.1.6 Since the electronic circuit board 306 is considered the sensor holder, the features related to the sensor holder (features F1.g to F1.k) are not disclosed in

document D4. Feature F1.f is also not disclosed as air flow prevention in document D4 is achieved collectively by the sensor 308, the sensor holder 306 and the sealing member 380, rather than by the sensor and the sensor holder as claimed in granted claim 1.

3.2 Novelty of the subject-matter of granted claim 1 vis-à-vis the prior use "Vuse Solo" (document convolute D6)

The appellant admitted that the technical implementation of the e-vaping device of document D4 and the prior use "Vuse Solo" is the same. Thus, the same conclusion as for the novelty over document D4 applies *mutatis mutandis* for the novelty over the prior use "Vuse Solo" (see document convolute D6). The question of its sufficient substantiation can therefore be left open.

3.3 Novelty of the subject-matter of granted claim 1 vis-à-vis document D2

3.3.1 Document D2 is prior art under Article 54(3) EPC.

3.3.2 The opposition division held that the subject-matter of claim 1 was novel and that document D2 lacked a sensor having a shape that corresponds to the second cavity (feature 1F.j) (see decision under appeal, Reasons, point 20.3).

3.3.3 The Board shares the opposition division's conclusion that the subject-matter of granted claim 1 is new over document D2. However, contrary to the opposition division and the appellant, the Board considers that the PCB 5106 constitutes the sensor holder. The sensor 5108 is arranged on PCB 5106, which, in turn, is mounted via support plate 537 to base unit 524 (see

document D2, Figure 5a; page 22, lines 1 to 4). As sensor holder, the PCB lacks first and second dimension sections that define cavities with different dimensions, where the second cavity corresponds to the shape of the sensor. Therefore, at least features F1.g to F1.k are not disclosed in document D2.

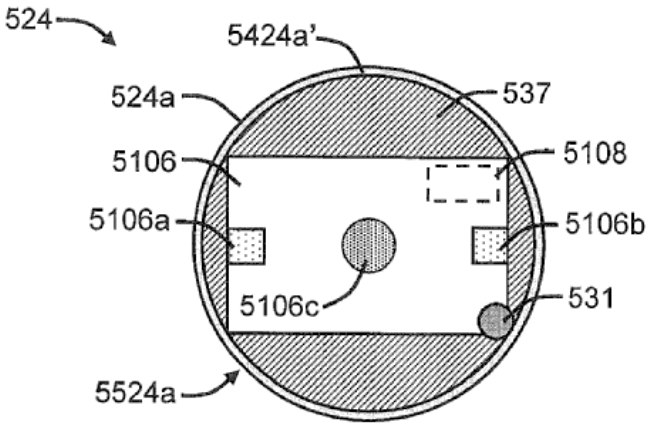
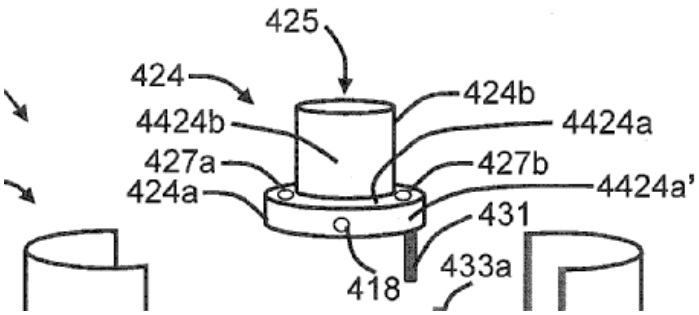


FIG. 5a

Figure 5a of document D2

3.3.4 As argued by the appellant, the support plate 537 is used to separate PCB 5108 from the space 525, allowing for an airtight separation. The sensor 5106 may pass through the support plate so as to be at least partially positioned within the cavity 525 of the base unit 524 (see document D2, page 21, lines 36 to 37; page 22, lines 1 to 4). The Board notes, however, that the support plate does not support the sensor but rather the PCB. Therefore, the support plate with or without the base unit cannot be considered to form a sensor holder.

3.3.5 Even if the base unit, together with the support plate and the PCB, formed the sensor holder as argued by the appellant (see document D2, Figure 5: 525; Figure 4: 425; page 21, lines 28 to 29), either feature F1.j or F1.k would not be disclosed in document D2 depending on what is considered the second cavity. If the shape of the skirt of the base unit 525/425 were the second dimension section, it would not correspond to the shape of the sensor. If the opening of the sensor in the support plate were regarded as the second dimension, then the first dimension would not be smaller than the second dimension.



Top part of Figure 4 of document D2, drawing on page 10 of the appellant's statement of grounds of appeal

3.4 Novelty of the subject-matter of granted claim 1 vis-à-vis document D3

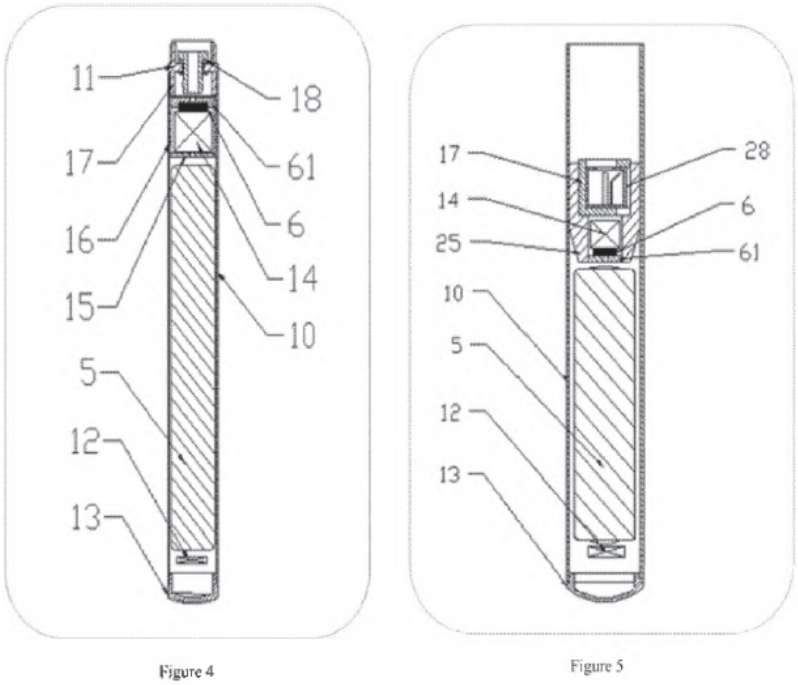
3.4.1 The opposition division held that the subject-matter of granted claim 1 was new in view of document D3. This document neither described that the shape of sensor 6 corresponded to the cavity in plate 61 (feature F1.j), nor that an air flow prevention was achieved by the sensor and the sensor holder (feature F1.f) (see decision under appeal, Reasons, point 21.3).

3.4.2 With regard to feature F1.j, the Board shares the appellant's view that Figure 4 of document D3 discloses

a sensor 6 having a shape that fits into a corresponding cavity in plate 61, contrary to the opposition division's findings.

3.4.3 With regard to feature F1.f, the Board reaches the same conclusion as the opposition division which is why the subject-matter of granted claim 1 is new over document D3.

3.4.4 The Board concurs with the respondent's arguments that when the user puffs, air enters the e-vaping device of document D3 through the cap 13, flows along the power section, and then passes through sensor 6 into the cartomizer section (see the embodiments in Figures 4 and 5 of document D3, as referenced by the appellant).



Figures 4 and 5 of document D3

Therefore, regardless of what is considered the sensor holder in document D3, the sensor and the sensor holder/seal element do not prevent air flow between the first portion into the second portion. Thus,

feature F1.f is not disclosed in document D3.

3.4.5 The Board points out that the sensor in document D3 is an air flow sensor. The appellant specifically referred to dependent claim 4 of document D3, which states that the air flow sensor is a diaphragm microphone. While a diaphragm microphone falls under the category of pressure sensors, in the embodiments shown in Figures 4 and 5 of document D3, it still measures air flow.

3.4.6 The Board concurs with the respondent that a prerequisite for the functioning of the device in document D3 is that air flows through the sensor. In the embodiments of Figure 4 and 5 of document D3, the only possibility for air to enter the interior of the e-vaping device is through the air inlets at cap 13 at the distal end of the device. The air flow through the sensor is supported by the disclosure of document D3, for instance, in paragraph [0012], which states: "*When the user puffs on the electronic cigarette through the air-puffing hole on the first end of the atomizer, the electronic sensor detects an airflow and converts it to a signal, which then wakes up the single chip micyoco to record the signal.*" This is also disclosed in paragraphs [0025] and [0036] of document D3.

3.4.7 Contrary to the appellant's allegation, the structure of the e-vaping device in document D3 and the patent are not identical.

The vent holes 65 of the patent are configured to evacuate any gases present in the power source section 75, while the small holes in the cap 13 of the device in document D3 are for air inflow. These small holes in cap 13 correspond to the air vents 55 of the patent, which are configured to allow air to flow in

the interior during use of the e-vaping device by a user.

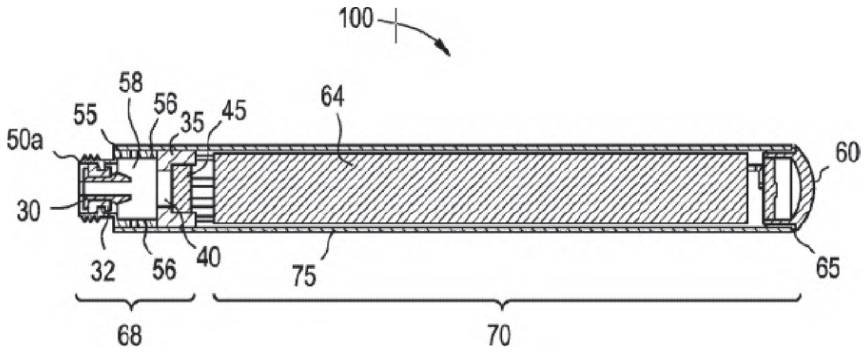


Figure 2 of the patent

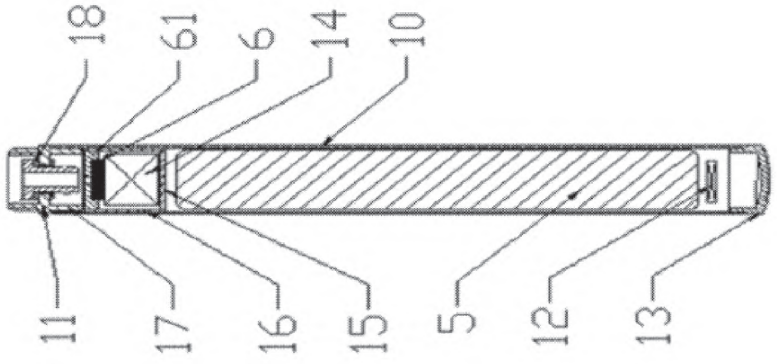


Figure 4 of document D3 (turned by 90°)

3.5 Conclusion on novelty

The subject-matter of granted claim 1 is new over document D4, the prior use "Vuse Solo" (document convolute D6), documents D2 and D3. The same conclusion applies for the subject-matter of granted claim 14, which claims an e-vaping device comprising a power-supply section as claimed in granted claim 1. Therefore, the ground for opposition under Article 100(a) EPC together with Article 54 EPC does not prejudice the maintenance of the patent in its

granted version.

4. Inventive step (Ground for opposition under Article 100(a) EPC in combination with Article 56 EPC)

4.1 The opposition division concluded that the subject-matter of granted claim 1 was not rendered obvious by a combination of documents D3 and D1, particularly because even a combination of these documents did not disclose features F1.f and F1.j (see decision under appeal, Reasons, point 25.4).

4.2 The Board agrees with the opposition division's conclusion in so far as the subject-matter of granted claim 1 was not rendered obvious by a combination of documents D3 and D1, and that such a combination would still not disclose feature F1.f.

4.3 The subject-matter of granted claim 1 differs from document D3 in feature F1.f (see point 3.4). The technical effect of this distinguishing feature is disclosed in paragraph [0008] of the patent. Based on this teaching the objective technical problem is formulated as how to configure a power supply section for an e-vaping device so that inhaled air is prevented from passing by the battery.

4.4 The Board agrees with the appellant that the person skilled in the art would have consulted document D1, which addresses the same objective technical problem. Paragraph [0069] of document D1 states that "*if desired, structural elements can be provided within the article so as to effectively isolate one or more components within the article from the air flowing from the air intake to the opening in the mouth end. In other words, a defined air flow path can be provided,*

and such defined air flow path can substantially avoid air flowing through the air flow path from coming into physical contact with one or both of the battery 40 and the control component 20.".

4.5 Furthermore, both documents use a flow sensor. Document D3 uses a flow sensor 61 and document D1 uses a flow sensor 30 allowing air flow from the inlets 17 to the mouthpiece (see document D1, paragraph [0066], Figure 1).

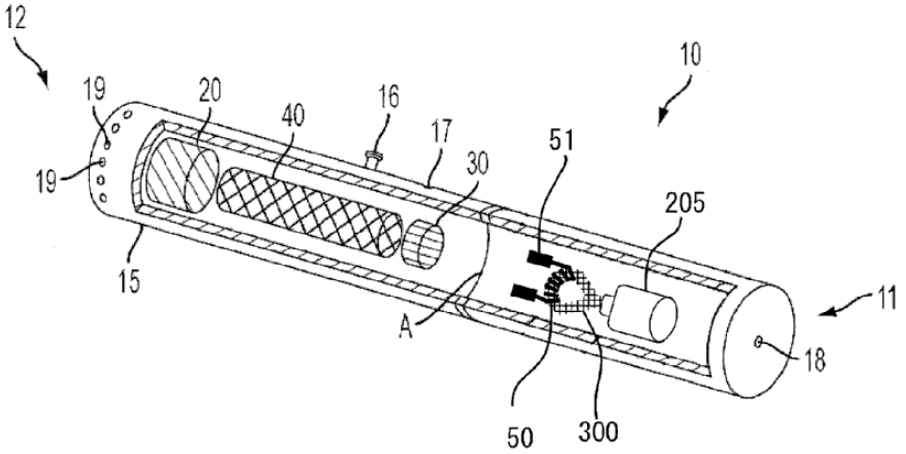


FIG. 1

Figure 1 of document D1

4.6 However, according to the Board's view and as stated by the respondent, there is no evident reason why combining document D3 with document D1 would have led the skilled person to the concept of isolating the battery using a sensor and sensor holder arrangement that prevents air flow.

4.7 The appellant argued that with the knowledge of document D1 the person skilled in the art would have modified the device of document D3 by blocking the

passage through the flow sensor and introducing air inlets downstream the sensor and sensor holder.

4.8 The Board is not convinced by the appellant's arguments. Although document D1 addresses the objective technical problem, neither document D3 nor document D1 discloses a solution as claimed in granted claim 1. The modifications proposed by the appellant are based on a retrospective view. In particular, the blocking of air flow through the sensor would run against the operating principle of document D3 as elaborated under the discussion of novelty vis-à-vis document D3 (see point 3.4 above). Therefore, a major re-design would have been required.

4.9 Furthermore, as stated by the respondent, starting from document D3 and considering the teachings of document D1, especially those of paragraph [0069], the claimed solution is not the only possibility to achieve an isolation of the battery. One further option might be a housing for the battery.

4.10 Conclusion on inventive step

Consequently, the subject-matter of granted claim 1 is not rendered obvious by a combination of documents D3 with D1. The same conclusion applies *mutatis mutandis* for the subject-matter of granted claim 14, which claims an e-vaping device comprising a power-supply section as in granted claim 1. The inventive step objection starting from the prior use (document convolute D6) had been withdrawn during the oral proceedings before the Board (see minutes of the oral proceedings). The ground for opposition under Article 100(a) EPC together with Article 56 EPC does not prejudice the maintenance of the patent in its

granted version.

5. Conclusion

In view of the above, the appeal has to be dismissed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

H. Jenney G. Pricolo

Decision electronically authenticated