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**Datasheet for the decision
of 10 July 2023**

Case Number: T 1260/21 - 3.2.01

Application Number: 15807846.9

Publication Number: 3232834

IPC: A24F47/00

Language of the proceedings: EN

Title of invention:

AN AEROSOL-GENERATING SYSTEM USING THE VENTURI EFFECT TO
DELIVER SUBSTRATE TO A HEATING ELEMENT

Patent Proprietor:

Philip Morris Products S.A.

Opponent:

Nicoventures Trading Limited

Headword:

Relevant legal provisions:

EPC Art. 54, 56, 123(2), 100(b)
RPBA 2020 Art. 12(2), 12(4)

Keyword:

Novelty - main request (no) - auxiliary requests 1-2 (no)
Inventive step - auxiliary request 3 (yes)
Grounds for opposition - insufficiency of disclosure (no) -
extension of subject-matter (no)
primary object of appeal proceedings to review decision -
appeal case directed to requests on which decision was based
(yes)

Decisions cited:

Catchword:



Beschwerdekammern

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Case Number: T 1260/21 - 3.2.01

D E C I S I O N
of Technical Board of Appeal 3.2.01
of 10 July 2023

Appellant 1: Philip Morris Products S.A.
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Decision under appeal: **Interlocutory decision of the Opposition
Division of the European Patent Office posted on
24 June 2021 concerning maintenance of the
European Patent No. 3232834 in amended form.**

Composition of the Board:

Chairman G. Pricolo
Members: S. Mangin
A. Jimenez

Summary of Facts and Submissions

- I. The appeals were filed by the appellant 1 (patent proprietor) and the appellant 2 (opponent) against the interlocutory decision of the opposition division finding that, on the basis of the then auxiliary request 5 (reordered to auxiliary request 3 during the oral proceedings in appeal), the patent in suit (hereinafter "the patent") met the requirements of the EPC.
- II. In particular, the Opposition Division held that:
- the subject-matter of claim 1 of the main request (patent as granted) and auxiliary requests 1-3 was not novel over D13 (WO2014/012907),
 - the subject-matter of claim 1 of auxiliary request 4 was novel over D13 but did not involve an inventive step in view of D13 in combination with D20 (US2013/0213419),
 - the subject-matter of claim 1 of auxiliary request 5 was novel over D13 and involved an inventive step starting from D14 (CN 203646499) or starting from D13. The Opposition Division did not admit the objection of lack of inventive step starting from D2 (US 2014/0190496 A1).
- III. Oral proceedings were held before the Board on 10 July 2023.
- IV. The appellant (patent proprietor) requested that the decision under appeal be set aside and the patent be maintained as granted (main request) or in the alternative that the patent be maintained in amended form on the basis of one of the auxiliary requests 1-5 filed in opposition proceedings, wherein auxiliary

request 5 was renumbered as auxiliary request 3 and auxiliary requests 3-4 were renumbered as auxiliary requests 4-5, or on the basis of one of the auxiliary requests 6-8 filed with the reply to the statement of grounds of appeal.

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

V. Independent claim 1 of the main request reads as follows:

An aerosol-generating system comprising:
an air inlet (18) and an air outlet (24);
a liquid storage portion (30) holding a liquid aerosol-forming substrate, the liquid storage portion having a liquid outlet (38);
an air flow passage (22) from the air inlet to the air outlet past the liquid outlet, wherein the air flow passage is shaped so that there is a pressure drop within the air flow passage at the liquid outlet when air flows from the air inlet to the air outlet through the air flow passage; and
a heating element (26) within the flow path, positioned between the liquid outlet and the air outlet;
wherein the heating element spans the air flow passage and is fluid permeable.

Independent claim 12 of the main request reads as follows:

A cartridge for use in an aerosol-generating system, the cartridge comprising:
an air inlet (18) and an air outlet (24);

a liquid storage portion (30) holding a liquid aerosol-forming substrate, the liquid storage portion having a liquid outlet (38);
an air flow passage (22) from the air inlet to the air outlet past the liquid outlet, wherein the air flow passage is shaped so that there is a pressure drop within the air flow passage at the liquid outlet when air flows from the air inlet to the air outlet through the air flow passage; and
a heating element (26) in the air flow passage between the liquid outlet and the air outlet;
wherein the heating element spans the air flow passage and is fluid permeable.

Independent claim 13 of the main request reads as follows:

A method of generating aerosol from a liquid aerosol-forming substrate comprising:

providing a liquid storage portion (30) having a liquid outlet (38);
providing an air flow passage (22) past the liquid outlet (38);
drawing liquid aerosol-forming substrate out of the liquid outlet into an air flow in the air flow passage by creating a pressure drop in the air flow at the liquid outlet and conveying the liquid in the air flow to a fluid permeable heating element (26) spanning the air flow passage, the heating element vapourising the liquid to provide a vapour;
cooling the vapour to provide an aerosol.

VI. Claims 1, 12 and 13 of auxiliary request 1 correspond to claims 1, 12 and 13 of the main request respectively specifying that the heating element is positioned "downstream of the liquid outlet".

- VII. Claims 1, 12 and 13 of auxiliary request 2 correspond to claims 1, 12 and 13 of the main request, respectively, with the following additional feature:
"wherein the pressure drop creates suction at the liquid outlet, drawing liquid out of the liquid outlet into the air flow so that liquid is carried in the air flow to the heating element, where it is vapourised"
- VIII. Claims 1, 11 and 12 of auxiliary request 3 correspond to claims 1, 12 and 13 of the main request respectively with the addition of the features of granted claim 4:
"wherein the liquid storage portion comprises an air inlet valve (48) that allows air to enter the liquid storage portion when in an open position but not when in a closed position".
- IX. The following further documents are cited in the present decision:
D1: EP 0295122 A2
D38: Generation of Aerosols: BARC Nebulizer and Others by P.S. Soni and B. Raghunath, 1994.

Reasons for the Decision

1. Main Request - Novelty over D13 - Article 54 EPC
- The subject-matter of claim 1 is not novel over D13.

- 1.1 The appellant 1 (proprietor) argued that D13 did not disclose:

- 1.1.1 (a) a fluid permeable heating element.

According to appellant 1 (proprietor), feature (a) did not only require that the heater element as a whole

allowed air to pass through. The ordinary meaning of the expression "to permeate" was to pass through pores or interstices. So the heating element of claim 1 was required to have pores or interstices, which were not present in the heating element of D13.

- 1.1.2 (b) a heating element within the flow path positioned between the liquid outlet and the air outlet

The appellant 1 (proprietor) noted that claim 1 required the pressure drop within the airflow passage at the liquid outlet. Furthermore, the heating element within the flow path was to be positioned between the liquid outlet and the air outlet, and this meant that the entire heating element was in a separate portion of the air flow path to the entire liquid outlet. In D13, the heating element was positioned at the liquid outlet but not between the liquid outlet and the air outlet as required by claim 1.

Furthermore, the skilled person would interpret claim 1 in a manner that was consistent with the patent as a whole, consistent with the stated problems and advantages and consistent with the described embodiments. The skilled person would understand that the patent provided a solution in which the material structure that held liquid at the liquid outlet was not directly heated and that therefore the location of the heating element "within the flow path, positioned between the liquid outlet and the air outlet" required a separation of the heating element from the liquid outlet in the direction of the airflow, so that the airflow passed the entire liquid outlet before reaching the heating element. The heating element of D13 was not positioned between the liquid outlet and the air outlet in this sense. In D13, the wicking material was directly heated, which was the arrangement that the

patent as described in paragraph [0002] sought to avoid.

1.2 The Board does not agree.

1.2.1 The Board notes that whether the heating element is a resistively heated coil formed by a helix wire, as in D13 (page 7, line 29-page 8, line 7), or a resistively heated mesh, array or fabric of conductive filaments, as in the patent (paragraph [0016]), in both cases, air and liquid can pass through it. In D13, air and liquid pass through the spaces between the wire of the coil and in the patent through the spaces between the filaments. In the absence of any details about the fluid permeable heating element in claim 1, the coil 21 in D13 is to be considered as a fluid permeable heating element according to claim 1.

1.2.2 In figure 2 of D13, the heating coil is placed within the flow path between the liquid outlet (surface 28 of the channel 23) and the air outlet 4. The interpretation of feature (b) by the appellant 1 (proprietor) is too narrow. In particular, claim 1 does not specify the distance between the liquid outlet and the heating element and does not specify that the air flow should be considered when interpreting the position of the heating element between the liquid outlet and the air outlet, implying that the airflow passed the entire liquid outlet before reaching the heating element.

As mentioned by the appellant 2 (opponent) the heating element 21 in figure 2 is positioned between the liquid outlet 28 and the air outlet 4, otherwise the liquid leaving the wicking element 28 would not be vaporised before leaving the air outlet of the electronic

cigarette. The Board notes also that the heating element placed in front of the liquid outlet, considered as "at" the liquid outlet is not in contradiction with the heating element positioned between the liquid outlet and the air outlet.

Furthermore, claim 1 is clear and a consultation of the description and especially the problem to be solved by the invention to give a narrower meaning to claim 1 is not appropriate. It is established case law that for the purpose of judging novelty and inventive step, Article 69 EPC and its Protocol cannot be relied on to read into the claim an implicit restrictive feature not suggested by the explicit wording of the claim (Case Law of the Boards II.A.6.3.4 "Reading additional features and limitations into the claims").

2. Auxiliary request 1 - Novelty over D13 - Article 54 EPC

The subject-matter of claim 1 is not novel over D13

2.1 The appellant 1 (proprietor) argued that the additional feature relating to the position of the heating element being "downstream of the liquid outlet" made it even more explicit that the heating element could not be "at" the liquid outlet like on figure 2 of D13 but had to be further away "downstream" of the liquid outlet with respect to the air flow (i.e. past the wicking element 20 and its inner surface 28 in figure 2 of D13).

2.2 The Board judges that the amendments made to claim 1 do not render the subject-matter of claim 1 novel over D13.

Indeed in D13 the liquid element 21 is located downstream of the liquid outlet 28. The liquid first

exits the porous material of the support 20 via the inner surface 28 and then passes through the heating element 21, 24 to be evaporated and passes the air outlet.

3. Auxiliary request 2 - novelty over D13 - Article 54 EPC

The subject-matter of claim 1 is not novel over D13.

3.1 The appellant 1 (proprietor) argued that claim 1 required the liquid to leave the liquid outlet and to be carried in the airflow for some distance before it reached the heating element. The airflow was being used as the mechanism by which liquid was delivered to the heating element. In D13, "vaporised liquid" (i.e. not liquid, but vapour) was conveyed in the airflow (D13, page 9, lines 22-25). The only liquid droplets that were carried in the airflow in D13 were described on page 9, lines 28-30 of D13, and they were not carried from the liquid outlet to the heating element; they were described as being carried away from the heating element and were never vaporised.

Furthermore, the liquid outlet and the heating element were exactly the same length and were co-terminus in the direction of the airflow, liquid at the liquid outlet was already at the heating element and the airflow could not carry the liquid any closer to the heating element.

3.2 The Board is not convinced by the argument of the appellant 1 (proprietor).

While some of the liquid coming out of the wicking material may be directly vaporised, some liquid droplets come out of the wicking material and are

vaporised as they approach the heating element. A certain amount of energy is required to vaporise the liquid, such that not all the liquid coming out from the surface 28 will be vaporised instantaneously.

Page 9, lines 14-19 of D13 reads:

"Once the coil 24 heats up, liquid in the vaporisation cavity 19 is vaporised. In more detail, liquid on the coil 24 is vaporised, liquid on the inner surface 28 of the heating element support 20 is vaporised and liquid in the portions 22 of the support 20 which are in the immediate vicinity of the heating element 21 may be vaporised. Moreover, liquid may have gathered on the airflow channeler 50 and this liquid may also be vaporised".

Contrary to the allegation of the appellant 1 (proprietor), the vaporisation does not only take place in the support 20 or at its outlet, but also on the coil and between the coil and the inner surface 28 (D13, figure 2).

Furthermore, the channeler 50 in figure 2 of D13 causes a venturi effect and increases the wicking of liquid from the liquid store 6 to the support 20 and from the support 20 to the coil as the the static pressure is decreased at the inner surface 28 (D13, page 10, lines 12-15).

Finally, as pointed out by the appellant 2 (opponent), there is no limitation in claim 1 related to the distance between the liquid outlet and the heating element.

4. Auxiliary request 3 (corresponding to auxiliary request 5 in opposition proceedings) - admissibility - Article 12(2) and (4) RPBA 2020.

Auxiliary request 3 was filed on the first day of the oral proceedings in opposition. The subject-matter of claim 1 was a combination of granted claims 1 and 4. The opposition division exercised their discretion in admitting it. Auxiliary request 3 is part of the appeal proceedings.

4.1 Appellant 2 (opponent) argued that auxiliary request 3 (i.e. auxiliary request 5 in opposition proceedings) should not have been admitted in the opposition proceedings as it made the proceedings take a new turn requiring the parties to be reconvene within a week. The limitation of the subject-matter of claim 1 to an air inlet valve had nothing to do with the features of the previously filed auxiliary requests 1-4 filed on 5 March 2021 and corrected auxiliary request 4 filed on 4 May 2021. The appellant 2 (opponent) held that there were no reason for not filing this auxiliary request earlier with the first set of auxiliary requests. The appellant 2 (opponent) noted that they filed D20 on 5 March 2021 at the earliest stage after the filing of auxiliary request 4. D20 was thus not late filed. Therefore, the Opposition Division did not apply their discretion properly when admitting auxiliary request 3.

4.2 The appellant 1 (proprietor) replied that auxiliary request 3 (i.e. auxiliary request 5 in opposition proceedings) was not late filed in opposition as it was filed in response to the late filed document D20 admitted in the proceedings to be combined with D13 for an inventive step objection against claim 1 of auxiliary request 4. Furthermore claim 1 was a combination of granted claims 1 and 4, which the opposition division considered *prima facie* allowable.

The Opposition Division exercised its discretion correctly in admitting auxiliary request 3.

- 4.3 Under the assumption that the Board has the power to exclude from the appeal proceedings a request that was admitted and decided upon by the opposition division, there are in any case no reasons for concluding that the the opposition division did not exercise correctly their discretion.

In fact, the Board should overrule the way in which the Opposition Division exercised its discretion in reaching a decision in a particular case only if the Board concludes that the Opposition Division did so in accordance with the wrong principles, without taking the right principles into account or in an arbitrary or unreasonable way, thereby exceeding the proper limits of its discretion.

In the present case the Board can see no flaws in the Opposition Division exercise of discretionary power. Reference is made to point 47 of the appealed decision. The Opposition Division applied their discretion on the basis of *"the change of mind of the opposition division based on the admittance of a late filed document"* and the *"clear allowability"* of auxiliary request 5.

5. Auxiliary request 3 - Added subject-matter - Article 123(2) EPC

- 5.1 Claim 1 of auxiliary request 3 is based on original claims 1, 4 and 8 wherein the "air flow channel" recited in original claim 8 has been amended to "air flow passage" in claim 1. Auxiliary request 3 does not extend beyond the content of the application as filed.

- 5.2 During oral proceedings, the parties referred to their written submissions. The Board has not reason to

deviate from its preliminary opinion stated in the communication pursuant Article 15(1) RPBA 2020 which is reproduced below:

The argument of the appellant 2 (opponent) "that the air flow channel may be a sub-feature of the air flow passage, e.g. a smaller cross-section of the passage such that the heating element only spans part of the air flow passage" cannot be followed. The Board follows the opinion of the Opposition Division that the two words channel and passage are interchangeable in the context of the present invention.

Furthermore while original claim 8 is not dependent on original claims 12 and 13, the description as a whole clearly discloses the teaching of original claims 12 and 13 in combination with original claim 8.

6. Auxiliary request 3 - Sufficiency of disclosure - Article 100(b) EPC

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

During oral proceedings, the parties referred to their written submissions. The Board does not see any reasons to deviate from its preliminary opinion stated in the communication pursuant Article 15(1) RPBA 2020.

6.1 In their statement of grounds of appeal, the appellant 2 (opponent) argued that "...shaped so that..." in the feature "wherein the air flow passage is shaped so that there is a pressure drop within the air flow passage" was ambiguous such that the skilled person was unable to identify without undue burden the technical measures leading to the claimed subject matter. There was also

no disclosure of the airflow rate at which the desired pressure drop was to occur. Paragraphs [0059] to [0063] of the patent involved some flawed mathematics that amounted to nothing more than an incorrect characterisation of the Venturi effect.

It would be clear to the skilled person that any small cylindrical tube with both ends open would experience a Venturi effect when placed in an atmosphere with even the slightest breeze. As such, the skilled person required clear boundaries on the language provided in the claim in order for the language to be limiting and the technical measures to solve the alleged problem, and yet no such language was provided in the claim. No such teaching was provided in the specification either.

6.2 The Board does not agree. The feature "wherein the air flow passage is shaped so that there is a pressure drop within the air flow passage" is sufficiently disclosed in the patent.

The present invention uses the Venturi effect. This well know effect is mentioned in paragraph [0007] of the patent: "the restriction of the airflow passage causes an increase in air speed and a drop in air pressure". Furthermore figures 1 and 2 illustrate a possible shape of the flow passage.

The information provided in the patent is thus sufficient to enable the skilled person to carry out the invention and optimise the pressure drop by adjusting the cross section of the air flow passage as necessary.

7. Auxiliary request 3 - Inventive step - Article 56 EPC

The objections of lack of inventive step starting from D13, D2 or D14 are not convincing.

7.1 Starting from D13 as closest prior art in combination with common general knowledge, D1 or D2

7.1.1 The appellant 2 (opponent) argued that the air inlet valve was a non-technical feature having no technical function when implemented in the electronic cigarette of figure 2 of D13 as the support 20 acting as an extension of the liquid store 6 was described as "a hollow cylinder of porous material" allowing wicking of liquid and allowing air to enter and leave. Adding a valve in the electronic cigarette of D13 would have no technical effect and could not therefore contribute to inventive step.

The appellant (opponent) further explained that adding a valve to the electronic cigarette of figure 2 of D13 would actually only bring disadvantages due to the associated costs of the valve and the necessary additional manufacturing steps.

Alternatively, the appellant (opponent) argued that claim 1 did not require the liquid storage to be sealed. On the contrary this feature being only defined in claim 3, implied that the liquid storage was not sealed. Claim 1 thus covered the porous reservoir of D13 with a superfluous valve.

The problem solved was therefore to be regarded as providing an alternative arrangement in place of the reservoir of D13.

Valves were part of the common general knowledge such that it would be obvious for the skilled person to add a valve in the electronic cigarette of D13.

Figure 4 of D2 also disclosed a vent and a plug and figures 2 and 3 of D1 included an aperture both having the function of a valve, which the skilled person would implement into the reservoir of D13 without inventive skills.

7.1.2 The appellant 1 (proprietor) argued that the air inlet valve had a technical character and would have a technical effect if implemented in the electronic cigarette of figure 2 of D13. The valve would enable a better control of the pressure inside the liquid store 6 and a faster equilibration if required. However, in the electronic cigarette of D13, there was no incentive for the skilled person to add such a valve given that the porous wick 20 of D13 was open to the atmosphere. Furthermore documents D1 and D2 did not disclose a valve such that their combination with D13 would not lead to the subject-matter of claim 1.

7.1.3 The Board does not agree with the appellant 1 (opponent).

The subject-matter of claim 1 differs from the electronic cigarette of figure 2 of D13 in that *"the liquid storage portion comprises an air inlet valve that allows air to enter the liquid storage portion when in an open position but not when in a closed position"*.

As argued by the appellant 1 (proprietor), the air inlet valve is a technical feature having a technical function. As defined in claim 1, the valve allows air to enter the liquid storage portion when in an open position but not when in a closed position. This enables to regulate the pressure inside the liquid storage reservoir. Indeed as liquid leaves the liquid reservoir, pressure drops inside the liquid reservoir.

The objective technical problem is therefore to provide an aerosol-generating system with an improved pressure regulation in the liquid storage portion.

Starting from figure 2 of D13, there is no incentive for the skilled person to add such an air inlet valve, as the porous wick 20 is open to the atmosphere. The pressure in the reservoir 6 of D13 will not drop significantly to require such a valve. Indeed D13 does not mention any problem associated with the pressure drop, which occurs when the liquid reservoir is either not open to the atmosphere or is open to the atmosphere but only via a small surface.

Furthermore figure 4 of D2, as rightly pointed out by the appellant 1 (proprietor), does not show a valve, but the combination of a plug and a vent, which does not have the same function as a valve. The plug is drawn along the reservoir as the liquid inside the reservoir is used, such that the pressure in the reservoir is continuously adjusted. However a valve enables to regulate the pressure of the reservoir by closing and opening it. For example a specific negative pressure may be voluntarily maintained in the reservoir by leaving the valve in a closed position.

Figure 3 of D1 discloses an aperture 324 in the wall of the pipe 342. This aperture permits a flow of ambient air to enter into the rigid cylindrical chamber 336 and an equalisation of air pressure within the chamber 336 with ambient air (column 4, lines 19-24). However, in this embodiment, the aperture cannot be equated to a valve as the aperture cannot regulate the pressure. i.e., the aperture cannot be closed to maintain a certain pressure in the chamber.

7.2 Starting from D2 as closest prior art

Notwithstanding the question of the admissibility of the inventive step attack starting from D2, the Board judges that the subject-matter of claim 1 is not rendered obvious starting from D2.

7.2.1 The appellant 2 (opponent) argued that the subject-matter of claim 1 differed from the embodiment of figure 13 of D2 in that:

(a) - an air inlet valve allowed air into the liquid storage portion when open but not when closed

(b) - the heater spanned the air flow passage.

These two differences did not have a synergetic effect, such that the partial problem solution approach could be used.

Valves equilibrated pressure in the liquid storage portion. The problem to be solved was how to avoid the issue of pressure building in the liquid storage portion.

The skilled person would turn to figure 4 of D2, wherein the combination of the moving plug and the vent provided the function of the valve to solve the problem identified above.

The provision of the heating element spanning the airflow pathway did not in itself provide any technical effect. While it might be suggested that it increased the heating surface of the heater, this was not a guarantee from the "spanning" aspect only.

The problem to be solved was the provision of an alternative heating element. The skilled person would use the heating element disclosed in figure 31 of D2.

7.2.2 The appellant (proprietor) argued that there was no reason for the skilled person to combine the embodiment of figure 13 with figure 4 and figure 31 of D2. They

further argued that the heating element of figure 31 was not a fluid permeable heater and the plug and vent of figure 4 was different to a valve as it could not be opened and closed. Therefore, even if the skilled person would combine the teaching of figure 13 with the teaching of figures 4 and 31 they would not arrive at the subject-matter of claim 1.

7.2.3 The Board follows the opinion of the appellant (proprietor) that the plug and the vent of figure 4 is not equivalent to a valve. A valve can be opened and closed and can thereby regulate the pressure inside the liquid reservoir. The plug and vent will only enable the plug to be drawn along the reservoir as the liquid is used. The plug and vent of figure 4 of D2 will not enable to maintain a negative pressure in the liquid storage portion. Therefore even if the skilled person would combine the embodiment of figure 13 with the teaching of figure 4 and 31 they would not arrive at the subject-matter of claim 1.

7.3 Starting from D14 as closest prior art

7.3.1 Appellant 2 (opponent) argued that if the subject-matter of claim 1 was found to differ from the embodiment of figure 1 of D14 in that "the liquid storage portion comprises an air inlet valve that allows air to enter the liquid storage portion when in an open position but not when in a closed position", the subject-matter of claim 1 did not involve an inventive step starting from D14.

The air inlet valve was not associated to any surprising technical effect, and as the claim did not exclude the possibility of a large liquid outlet with a valve, even the technical effect of pressure

equilibration was not necessarily achieved across the scope of the claim.

The appellant 2 (opponent) noted that the scope of claim 1 covered a flexible, collapsing reservoir with a valve in it, as well as a valve used with a large liquid outlet. Therefore, the valve could not support the presence of an inventive step as it did not provide a technical effect.

Alternatively, the appellant 2 (opponent) argued that the objective technical problem could be defined as the provision of an alternative liquid reservoir. Such a rigid, closed reservoir with a valve was disclosed in the arrangement of D38. The skilled person would add such a valve and thereby arrive at the subject matter of claim 1.

Similarly figure 4 of D2 disclosed the use of a plug and a vent having the function of the valve.

Accordingly, the skilled person starting from D14 and in view of the teaching of D2 would add a valve without inventive skills. Finally, valves were well known to the skilled person and it would be obvious to implement it in the electronic cigarette of D14.

- 7.3.2 The appellant (proprietor) argued that the subject-matter of claim 1 differed from D14 in that:
- the air flow passage was shaped so that there was a pressure drop within the air flow passage at the liquid outlet when air flowed from the air inlet to the air outlet through the air flow passage; and
 - the liquid storage portion comprised an air inlet valve that allowed air to enter the liquid storage portion when in an open position but not when in a closed position.
 - the heating element spanned the air flow passage and was fluid permeable.

Regarding the implementation of an air inlet valve to regulate the pressure in the oil storage tank of D14, the appellant (proprietor) argued that D14 taught away from modifying the container 2 to comprise a valve which allowed air to enter the container 2 when in an open position. This was because D14 disclosed that it was desirable not to allow air to flow into the container 2. In particular D14 disclosed that, before leaving the factory, the container 2 had all the air removed to ensure there was uninterrupted supply whatever the orientation of the system until the oil was used up.

- 7.3.3 The Board considers that at least the liquid storage portion comprising an air inlet valve that allowed air to enter the liquid storage portion when in an open position but not when in a closed position represents a difference between the aerosol-generating system of claim 1 and the electronic cigarette of D14. The check valve disclosed in the first paragraph of page 4 of D14 is not an air inlet valve that allows air to enter the liquid storage portion when in an open position but not when in a closed position. According to the first paragraph on page 4 of the automatic translation of D14, *"the check valve ensures that the liquid can only enter or not enter...so the oil storage tank is compressed accordingly as the liquid decreases, thereby ensuring that no matter where the electronic cigarette is located uninterrupted supply can be obtained in all directions until the e-liquid is used up"*. Hence, the check valve is designed to let oil out when open. The check valve in D14 is not conceived to let air in and out. As mentioned by the appellant (proprietor), it is only at the beginning before use that air is purged through the check valve. No air should enter the oil

storage tank which is compressed when oil is let out via the check valve. Under these circumstances there is no reason to add an air inlet valve in the oil storage tank of D14, which would be contrary to the teaching of D14.

8. To conclude the Board judges that none of the objections raised against auxiliary request 3, which corresponds to auxiliary request 5 considered allowable by the opposition division, are conclusive. The decision of the opposition division is thus to be confirmed.

Order

For these reasons it is decided that:

The appeals are dismissed.

The Registrar:

The Chairman:



A. Vottner

G. Pricolo

Decision electronically authenticated