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Paper 25
Date: March 9, 2026

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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R.J. REYNOLDS VAPOR COMPANY,
Petitioner,

v.

HEALTHIER CHOICES MANAGEMENT CORP.,
Patent Owner.

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IPR2024-01458
Patent 9,538,788 B2

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Before JO-ANNE M. KOKOSKI, KRISTINA M. KALAN, and AVELYN M. ROSS, *Administrative Patent Judges.*

KALAN, *Administrative Patent Judge*.

# JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
*35 U.S.C. § 318*

# I. INTRODUCTION

## *A. Background and Summary*

R.J. Reynolds Vapor Company ("Petitioner") filed a Petition to institute *inter partes* review of claims 1, 7, 8, and 11 of U.S. Patent No. 9,538,788 B2 (Ex. 1001, "the '788 patent"). Paper 1 ("Petition" or "Pet."). Healthier Choices Management Corp. ("Patent Owner") did not file a Preliminary Response. We instituted *inter partes* review. Paper 7 ("Institution Decision" or "Inst. Dec."). Thereafter, Patent Owner filed a Response (Paper 14, "Resp."), Petitioner filed a Reply (Paper 17, "Reply"), and Patent Owner filed a Sur-reply (Paper 19, "Sur-reply"). An oral hearing was held on December 10, 2025, and a transcript of the hearing is included in the record. Paper 24 ("Tr."). We have jurisdiction under 35 U.S.C. § 6. This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons that follow, we determine that Petitioner establishes by a preponderance of the evidence that claims 1, 7, 8, and 11 of the '788 patent are unpatentable.

## *B. Related Matters*

The parties identify the following litigation involving the '788 patent: *Healthier Choices Management Corp. v. R.J. Reynolds Vapor Company*, Civil Action No. 1:23-cv-00813 (M.D.N.C.), filed Sept. 26, 2023. Pet. 68; Paper 5, 1.

## *C. The '788 Patent (Ex. 1001)*

The '788 patent describes an electronic cigarette that includes a casing having two chambers, a battery and fluid located inside the casing, a sealing element, a tube element, and a fiber element that transfers fluid to a heating assembly. Ex. 1001, codes (54), (57).

The ’788 patent explains that some cigarette substitutes contain disadvantages, including an inability to achieve “an effective peak concentration of nicotine . . . in the blood of a smoker” and a failure to “satisfy the habitual smoking actions of a smoker.” Ex. 1001, 1:40–50. The ’788 patent describes a need in the art to overcome these limitations of cigarette substitutes. *Id.* at 1:51–58.

Figure 2 of the ’788 patent, reproduced below, depicts a cross-sectional view of one embodiment of an electronic cigarette described in the ’788 patent. Ex. 1001, 1:65–67.

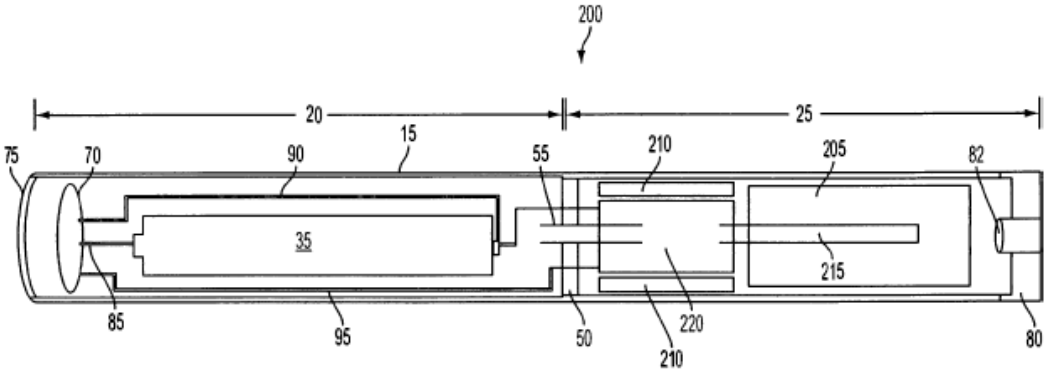



FIG. 2

Figure 2 above illustrates electronic cigarette 200 comprising cylindrical casing or tube 15. *Id.* at 4:61–65. Casing 15 contains first chamber 20 and second chamber 25. *Id.* at 4:65–67. Within first chamber 20 is battery 35, and within second chamber 25 is fluid container 205 and heating assembly 220. *Id.* at 5:1–2, 5:12–14. Seal 50 forms a partition between first chamber 20 and second chamber 25, and contains a hole or aperture in which a portion of tube 55 is located. *Id.* at 5:8–12. Tube 55 extends into heating assembly 220 and allows the passage of air from first chamber 20 to second chamber 25. *Id.* at 5:12–14.

Figure 3 of the '788 patent, reproduced below, depicts a cross-sectional view of a portion of the electronic cigarette illustrated in Figure 2 above. Ex. 1001, 2:1–2.

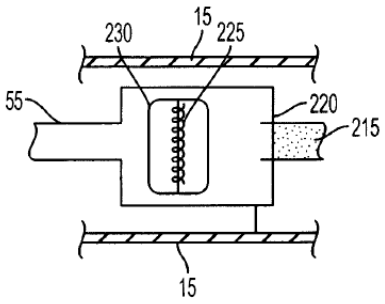



FIG. 3

Figure 3 illustrates a cross-section of the electronic cigarette shown in Figure 2, including tube 55 shaped in a "T." *Id.* at 5:15–17; Fig. 3. One end of tube 55 is a hollow cylinder, while the other end holds or is fixed to tempered glass bulb 230 in position in heating assembly 220. *Id.* at 5:17–21. Bulb 230 contains heating wire 225 that heats the bulb, which then heats a fluid that is introduced into heating assembly 220 through fiber element 215. *Id.* at 5:21–25.

*D. Illustrative Claim*

Petitioner challenges claims 1, 7, 8, and 11 ("the challenged claims") of the '788 patent. Pet. 15. Claim 1, reproduced below with Petitioner's annotations, is illustrative of the subject matter of the challenged claims:

1. An electronic cigarette, comprising:

[1a] a casing comprising a first chamber and a second chamber, the two chambers located sequentially within the casing;

[1b] a battery located in the first chamber;

[1c] a fluid containing member located in the second chamber;

[1d] a heating assembly located in the second chamber, the heating assembly comprising a bulb containing a heating wire in communication with the battery;

[1e] a fluid passageway communicating between the fluid containing member and the heating assembly;

[1f] a tube element communicating between the first and second chambers, with a first distal end of the tube element located in the first chamber, and a second distal end of the tube element located in the second chamber and affixed to the bulb, the tube element providing an air passage between the first and second chambers;

[1g] a sealing element forming a partition between the first and second chambers; and

[1h] an air inlet provided on an external wall of the casing;

[1i] wherein the heating wire heats the bulb, and wherein the bulb heats fluid introduced to and coming in contact with the bulb through the fluid passageway.

Ex. 1001, 8:59–9:14.

*E. Asserted Unpatentability Challenges*

Petitioner asserts the following grounds of unpatentability:

| **Ground** | **Challenged Claim(s)** | **35 U.S.C. §[1]** | **Reference(s)/Basis** |
|---|---|---|---|
| 1a | 1, 11 | 103(a) | Gilbert,[2] Cohen[3] |
| 1b | 7, 8 | 103(a) | Gilbert, Cohen, Weigensberg[4] |

[1] The Leahy-Smith America Invents Act ("AIA") included revisions to 35 U.S.C. § 103 that became effective on March 16, 2013. The '788 patent claims priority to applications filed before this date. *See* Ex. 1001, code (60). For the purposes of this Decision, pre-AIA statutes apply.
[2] US 3,200,819 to Gilbert, issued Aug. 17, 1965 (Ex. 1004).
[3] US 2011/0036346 A1 to Cohen et al., published Feb. 17, 2011 (Ex. 1007).
[4] US 9,943,107 B2 to Weigensberg et al., issued Apr. 17, 2018 (Ex. 1006).

| Ground | Challenged Claim(s) | 35 U.S.C. §[1] | Reference(s)/Basis |
|---|---|---|---|
| 2a | 1, 11 | 103(a) | Lee,[5] Gilbert, Levin[6] |
| 2b | 7, 8 | 103(a) | Lee, Gilbert, Levin, Weigensberg |

Pet. 17. Petitioner relies on the Declarations of Kelly R. Kodama. Ex. 1003; Ex. 1026. Patent Owner relies on the Declaration of Dr. Charles Garris. Ex. 2001.

## II. ANALYSIS

### *A. Legal Standard*

A patent claim is unpatentable if the differences between the claimed subject matter and "the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains." *KSR Int'l Co. v. Teleflex Inc*., 550 U.S. 398, 406 (2007).

Obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) when in evidence, objective evidence of nonobviousness.[7] *Graham v. John Deere Co*., 383 U.S. 1, 17–18 (1966).

The Supreme Court made clear that we apply "an expansive and flexible approach" to the question of obviousness. *KSR*, 550 U.S. at 415. Whether a patent claiming the combination of prior art elements would have been obvious is determined by whether the improvement is more than the

[5] KIPO Pub. No. KR 10-2012-0080287 to Lee, published July 17, 2012 (Ex. 1005), relying on an uncontested certified English translation.
[6] US 2013/0298905 A1 to Levin et al., published Nov. 14, 2013 (Ex. 1009).
[7] Neither party presents evidence as to objective indicia of nonobviousness.

predictable use of prior art elements according to their established functions. *Id*. at 417. Reaching this conclusion, however, requires more than merely showing that the prior art includes separate references covering each separate limitation in a challenged claim. *Unigene Labs., Inc. v. Apotex, Inc*., 655 F.3d 1352, 1360 (Fed. Cir. 2011). Rather, obviousness requires that a person of ordinary skill at the time of the invention "would have selected and combined those prior art elements in the normal course of research and development to yield the claimed invention." *Id*.

*B. Level of Ordinary Skill in the Art*

The level of ordinary skill in the art is a factual determination that provides a primary guarantee of objectivity in an obviousness analysis. *Al-Site Corp. v. VSI Int'l, Inc.*, 174 F.3d 1308, 1324 (Fed. Cir. 1999) (citing *Graham*, 383 U.S. at 17–18; *Ryko Mfg. Co. v. Nu-Star, Inc.*, 950 F.2d 714, 718 (Fed. Cir. 1991)). In determining the level of skill in the art, we consider the type of problems encountered in the art, the prior art solutions to those problems, the rapidity with which innovations are made, the sophistication of the technology, and the educational level of active workers in the field. *Custom Accessories, Inc. v. Jeffrey-Allan Indus., Inc.*, 807 F.2d 955, 962 (Fed. Cir. 1986); *Orthopedic Equip. Co. v. U.S.*, 702 F.2d 1005, 1011 (Fed. Cir. 1983).

Petitioner argues a person of ordinary skill in the art ("POSITA" or "POSA") at the time of the invention

> would possess at least a Bachelor's degree in mechanical engineering, electrical engineering, industrial design or product design or product design engineering, chemistry, or physics, or a related field, and at least three to four years of industry experience, or a Master's degree in mechanical engineering, electrical engineering, industrial design or product design or

> product design engineering, chemistry, or physics, or a related field, and at least one to two years of industry experience.

Pet. 15 (citing Ex. 1003 ¶ 18). Petitioner further argues a "POSA would have been familiar with electrically powered cigarettes and their components and underlying technologies or similar components and technologies." *Id.*

"For the purposes of this Response," Patent Owner "does not dispute Petitioner's proposed level of skill in the art." Resp. 17. On this complete record, we adopt Petitioner's unopposed definition because it appears consistent with the'788 patent and the prior art of record. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (holding that the prior art itself can reflect the appropriate level of ordinary skill in the art).

*C. Claim Construction*

In *inter partes* reviews, we construe claim terms according to the standard set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–17 (Fed. Cir. 2005) (en banc). 37 C.F.R. § 42.100(b). Under *Phillips*, claim terms are afforded "their ordinary and customary meaning." *Phillips*, 415 F.3d at 1312. "[T]he ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention." *Id*. at 1313. "Importantly, the person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification." *Id*. "In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence."

*DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc*., 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17).

Petitioner argues that it interprets the claims "at least in part based on Patent Owner's construction of the claims as informed by its allegations of infringement in co-pending litigation, as best Petitioner is able to understand such allegations." Pet. 18 (citing Exs. 1016–1017). Petitioner does not propose express construction of any claim term. *Id.*

Patent Owner states that "Petitioner and [Petitioner's declarant] Mr. Kodama interpret the meaning of the claims based on [Patent Owner's] construction of the claims by its allegations of infringement in the ongoing litigation." Resp. 18. Patent Owner further states that for "the purposes of this response," it "agrees on how the claims are to be construed." *Id.*

Upon review of the record, we determine that no claim terms require express construction. *See Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) ("The Board is required to construe 'only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.'") (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

*D. Overview of Asserted Prior Art*

*i. Gilbert (Ex. 1004)*

Gilbert is titled "Smokeless Non-Tobacco Cigarette" and describes "replacing burning tobacco and paper with heated, moist, flavored air." Ex. 1004, 1:1–11. Gilbert describes an article "resembling a cigarette by which air may be drawn through a porous substance of a cartridge which has been moistened with a chemically harmless flavoring preparation." *Id.* at 1:14–18. Gilbert further describes that "the moist and flavored air passes

through a section of the device heated by a suitable heating element so that warm, moist and flavored air is drawn into the mouth." *Id.* at 1:19–22.

Figure 2 of Gilbert, shown below, depicts a longitudinal section through a simulation of a cigarette as described in Gilbert. Ex. 1004, 1:39–43.

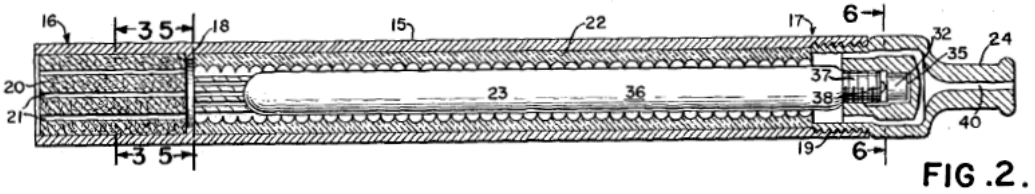



FIG .2.

Figure 2 illustrates external tube 15, containing flavor cartridge 20, heating element 36, and removable battery 32. *Id.* at 1:62–65, 2:3–5, 2:45–47, 3:4–8. Gilbert describes that flavor cartridge 20 fits snugly into outer end portion 16 of the external tube, so that the cartridge is held in place "by friction or other suitable means." *Id.* at 2:6–10.

*ii. Lee (Ex. 1005)*[8]

Lee is a Korean patent publication titled "External Air Inlet Structure Applied to an E-Cigarette." Ex. 1005, code (54). Lee describes an external air inflow structure applied to an e-cigarette capable of inducing external air required for vaporization of a nicotine solution to a heating element. *Id.* at code (57). Lee's air inlet structure includes a battery assembly and a heating element for vaporizing nicotine solution. *Id.*

Figure 1a of Lee, shown below, illustrates an electronic cigarette. Ex. 1005 ¶ 14.

[8] In this Decision, citations to Lee refer to the certified English translation, Exhibit 1005.

*FIGURE 1a*

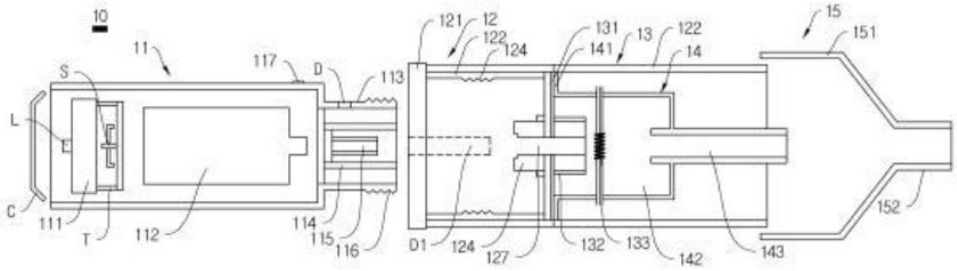



Figure 1a illustrates e-cigarette 10 that contains battery assembly 11, guide chamber 12, storage housing 13, vaporization unit 14, and inhalation piece 15. *Id.* ¶¶ 17–20, 33, Fig. 1a. Vaporization unit 14 has vaporization chamber 142, in which heating element 133 is installed. *Id.* ¶ 20.

*iii. Levin (Ex. 1009)*

Levin is titled "Electronic Vaporizing Device and Methods for Use," and published on November 14, 2013. Ex. 1009, codes (54), (43). Levin describes a device for vaporizing active ingredients of a substance for inhalation. *Id.* at code (57). Levin's device includes a portable power source, a heating portion, and an inhalation sensor. *Id.* In response to an inhalation by a user, the device's power source "energizes a heating element of the heating portion so as to heat air flow to a desired vaporization temperature." *Id.*

*iv. Weigensberg (Ex. 1006)*

Weigensberg is titled "Cartomizer Flavor Enhancement" and issued on April 17, 2018. Ex. 1006, codes (54), (43). Weigensberg is directed to a cartomizer for enhancing the flavor and/or smell of an electronic cigarette. *Id.* at code (57). Weigensberg may include an "external (removable) wrap or container or packaging for the flavor booster . . . or for the cartridge." *Id.* at 7:41–44.

*v. Cohen (Ex. 1007)*

Cohen is titled "Personal Inhalation Devices" and published on February 17, 2011. Ex. 1007, codes (54), (43). Cohen's personal inhalation device may be "constructed to resemble a cigarette" and includes three principal components: an electronics section, an atomizing unit, and a cartridge. *Id.* ¶¶ 17–18. The electronics section includes a pressure transducer, electronic circuit board, and power source. *Id.* ¶ 21.

*E. Obviousness Challenges Based on Lee, Gilbert, and Levin (Grounds 2a and 2b)*

Petitioner contends claims 1 and 11 are unpatentable as obvious in view of the combination of Lee, Gilbert, and Levin. Pet. 52–64 (Ground 2a). In support, Petitioner and Mr. Kodama explain where they believe each limitation of the challenged claims is disclosed in the references, and the reasons a person of ordinary skill would have been motivated to combine the disclosures of the references. *See, e.g.*, *id.*; Ex. 1003 ¶¶ 108–131. Petitioner also contends that claims 7 and 8 would have been unpatentable as obvious over Lee, Gilbert, Levin, and Weigensberg. *Id.* at 64 (citing Ex. 1003 ¶ 132). Patent Owner opposes. Resp. 25–40.

*i. Petitioner's Arguments*

Petitioner contends Lee discloses all of the limitations of claim 1 except the limitations requiring "the heating assembly comprising a bulb containing a heating wire" (in element [1d]) and "wherein the heating wire heats the bulb, and wherein the bulb heats fluid introduced to and coming in contact with the bulb through the fluid passageway" (element [1i]). Pet. 52. Petitioner contends that "Gilbert and Levin teach these limitations, and it

would have been obvious to a POSA to combine the teachings of these references." *Id.*

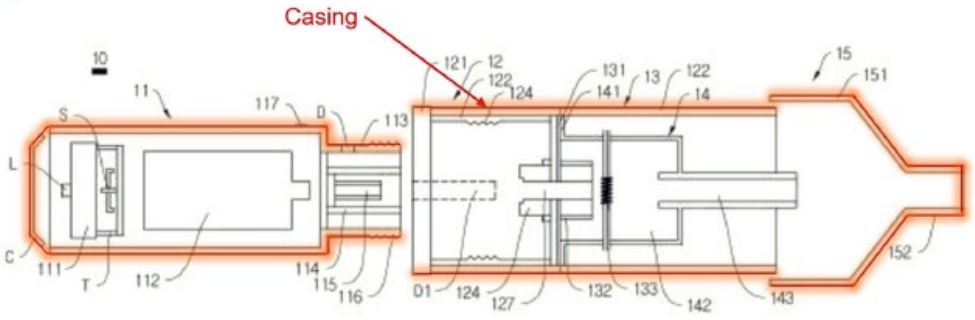
*1[pre] "An electronic cigarette, comprising:"*[9]

Petitioner contends Lee discloses claim 1's preamble because Lee discloses an electronic cigarette. Pet. 52–53 (citing Ex. 1005 ¶ 1).

*[1a] "a casing comprising a first chamber and a second chamber, the two chambers located sequentially within the casing"*

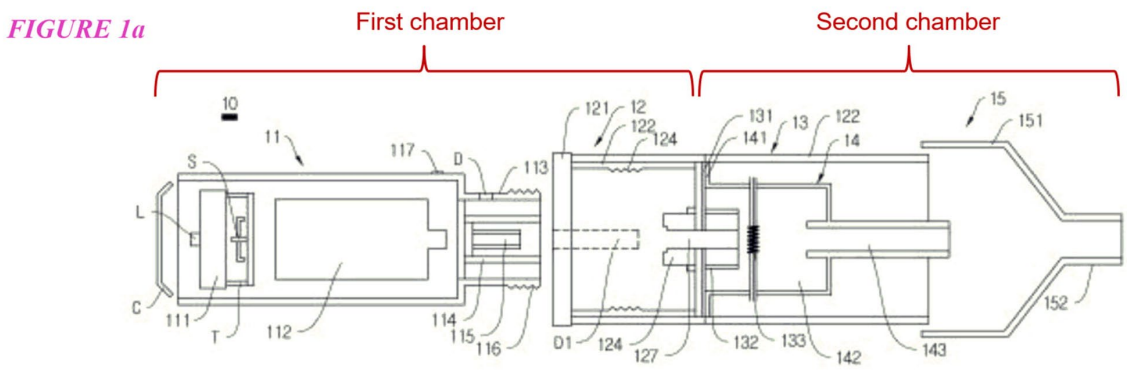
Petitioner contends Lee discloses element [1a] because Lee's battery assembly 11 and guide chamber 12, which are connected through connection chamber 113, together form a "first chamber" (Pet. 53, citing Ex. 1005 ¶ 19), and the interior of Lee's storage housing 13 is a "second chamber." *Id.* (citing Ex. 1005 ¶ 28). Petitioner provides an annotated version of Figure 1a of Lee, reproduced below, to support its contention that Lee discloses a casing.

*FIGURE 1a*




[9] Generally, a preamble does not limit a claim. *Allen Eng'g Corp. v. Bartell Indus., Inc.*, 299 F.3d 1336, 1346 (Fed. Cir. 2002). We need not decide whether claim 1's preamble limits the claim because Petitioner establishes sufficiently that Lee discloses claim 1's preamble.

Pet. 53. Petitioner's annotated version of Figure 1a of Lee shows a longitudinal section through Lee's components including battery assembly (11), connection chamber (113), and storage housing (13), and a colored line labeled "casing" that traces the outside of those components. *Id.* Petitioner delineates the "first chamber" and "second chamber" as follows in a second annotated version of Figure 1a:




Pet. 54. Petitioner's second annotated version of Figure 1a of Lee shows a red bracket denoting the "First chamber" on the left and another red bracket denoting the "Second chamber" on the right. *Id.*

*[1b] "a battery located in the first chamber;"*

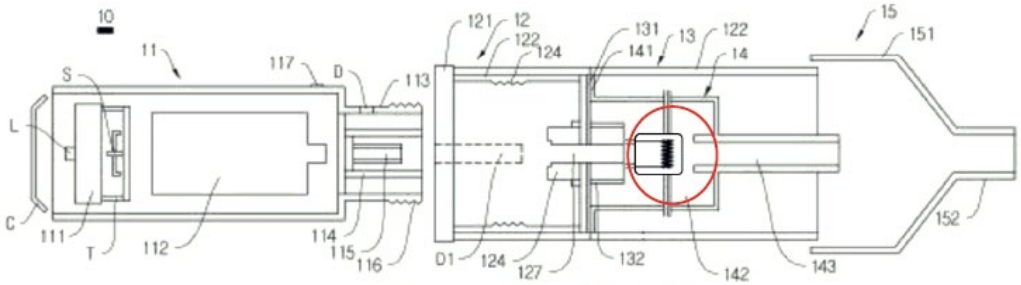
Petitioner contends Lee discloses element [1b] because Lee discloses battery 112 in the battery assembly (connected to the guide chamber forming the "first chamber" of the casing). Pet. 54 (citing Ex. 1005 ¶ 22, Fig. 1a).

*[1c] "a fluid containing member located in the second chamber;"*

Petitioner contends Lee discloses element [1c] because Lee's storage housing 13 stores a nicotine solution, which may be delivered via fiber aggregate (F) or "various nicotine solution supply means" to heating element 133. Pet. 54–55 (citing Ex. 1005 ¶¶ 20, 29).

*[1d] "a heating assembly located in the second chamber, the heating assembly comprising a bulb containing a heating wire in communication with the battery;"*

Petitioner contends Lee discloses a heating assembly located in the second chamber. Pet. 55–56 (citing Ex. 1005 ¶ 20, Fig. 1a). Petitioner concedes Lee does not disclose a "bulb" containing a heating wire, but contends this would have been obvious at least in view of Gilbert. *Id.* at 56 (referring to Pet. 41–42, citing Ex. 1004, 2:45–46, 2:50, 2:71–3:2, Fig. 2). Petitioner contends a person of ordinary skill in the art would have been motivated to explore types of heating elements other than the nichrome wire described in Lee due to issues with e-cigarettes at the time, such as metallic taste or inhalation risks associated with the use of a metal wire heating element. *Id.* at 57 (citing Ex. 1003 ¶ 117). Petitioner contends it was "known to use bulb heaters for vaporizing fluids for almost 100 years" (*id.* ¶¶ 117–118), and therefore a person of ordinary skill would have been motivated to implement a heating element within a glass bulb in Lee's device to address the metal taste and inhalation risk issues. Pet. 57. Petitioner provides an example of a possible implementation of the Gilbert bulb heater in the Lee device:




Lee modified by Gilbert

*Id.* Petitioner's annotated figure shows the proposed modification circled in red with the wording "Lee modified by Gilbert." *Id.*

Petitioner further contends a person of ordinary skill in the art would have been motivated to implement a heating element within a glass bulb to increase the life of the heating element and prevent failure of the device, because Levin teaches that directly contacting the heating element was known to reduce the life of the heating element, discloses a heater bulb for vaporizing an active ingredient for inhalation by the user, and explains that using, for example, a halogen tungsten filament in a quartz bulb allows for a consistent and reliable heat source that can be controlled to maintain a desired temperature level within a chamber in which the bulb is disposed. *Id.* at 58–59 (citing Ex. 1009 ¶¶ 4, 49, 56).

> *[1e] "a fluid passageway communicating between the fluid containing member and the heating assembly;"*

Petitioner contends Lee discloses element [1e] because fiber assembly (F), which supplies nicotine solution to heating element (133), passes through a supply passage (143) with "a shape of a through-hole formed in the circumferential surface of the vaporization chamber (142)," and the nicotine solution stored inside the storage housing and outside the vaporization unit may be supplied to the heating element through the supply passage. Pet. 59–60 (citing Ex. 1005 ¶ 32, Fig. 1c).

> *[1f] "a tube element communicating between the first and second chambers, with a first distal end of the tube element located in the first chamber, and a second distal end of the tube element located in the second chamber and affixed to the bulb, the tube element providing an air passage between the first and second chambers;"*

Petitioner contends Lee discloses element [1f] because air inlet path 127 communicates between guide chamber 12 and storage housing 13 so that air introduced into the storage housing can be supplied to Lee's heating element 133. Pet. 60–61 (citing Ex. 1005 ¶¶ 25–29). Petitioner

further contends a person of ordinary skill in the art would understand that using a bulb heater configuration, as Petitioner posits in its proposed modification of Lee for element [1d], would result in the tube element being affixed to the bulb on its first distal end, with the airflow path moving around the bulb. *Id.* at 61–62 (citing Ex 1003 ¶ 127).

*[1g] "a sealing element forming a partition between the first and second chambers;"*

Petitioner contends Lee discloses element [1g] because Lee's separating plate 131 physically separates guide chamber 12 and storage housing 13. Pet. 62 (citing Ex. 1005 ¶ 28).

*[1h] "an air inlet provided on an external wall of the casing;"*

Petitioner contends Lee discloses element [1h] because inlet hole (D) in a wall of connection chamber 113 provides external airflow to the inside of the connection chamber and guide chamber 12. Pet. 63 (citing Ex. 1005 ¶ 24, Fig. 2a).

*[1i] "wherein the heating wire heats the bulb, and wherein the bulb heats fluid introduced to and coming in contact with the bulb through the fluid passageway."*

Petitioner contends the combination of Lee, Gilbert, and Levin teaches or suggests element [1i] for the reasons discussed above for element [1d]. Pet. 63.

*Claim 11*

Claim 11 depends from claim 1. Ex. 1001, 10:1–5. Petitioner directs us to portions of Lee that Petitioner asserts disclose the additional limitations of claim 11. Pet. 63–64 (citing Ex. 1005 ¶¶ 3, 17).

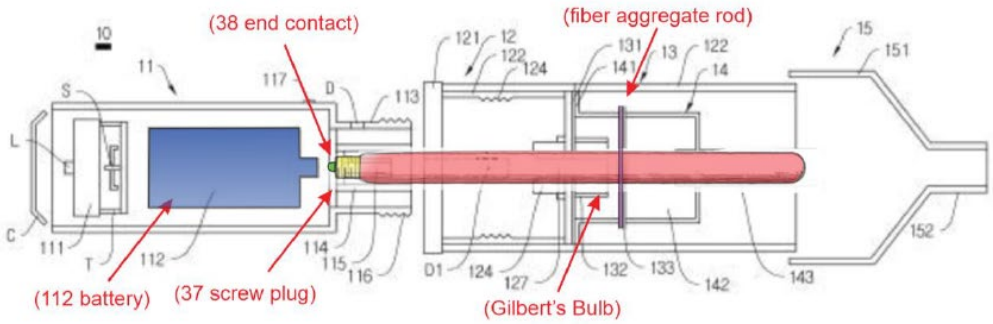
*Claims 7 and 8 (Ground 2b)*

Claims 7 and 8 depend from claim 1. Ex. 1001, 9:29–33. Petitioner directs us to portions of Weigensberg that Petitioner asserts disclose the additional limitations of claims 7 and 8. Pet. 64 (citing Section V(C); Ex. 1003 ¶ 132). More particularly, in Section V(C), Petitioner argues that Weigensberg discloses an e-cigarette that can include "a special external (removable) wrap or container or packaging for the flavor booster 602 or for the cartridge that will seal in and preserve the flavor during storage or between uses" that "may insulate against heat, light, moisture, or oxygen, etc." Pet. 48–49 (citing Ex. 1006, 7:41–45). Weigensberg additionally discloses that "sleeves" 404, 406 can be placed around the outside of the cartomizer, and mouthpiece 802 may be removable and can be placed around the outside of the cartomizer. *Id.* at 49–50 (citing Ex. 1006, Figs. 4, 9). According to Petitioner, "the benefits that would motivate a POSA to make this modification" to add Weigensberg's sleeve to the proposed combination "would be both gustatory and olfactory." *Id.* at 50–52 (citing Ex. 1003 ¶ 107).

*ii. Patent Owner Response*

First, regarding the combination of Lee with Gilbert, Patent Owner contends that the Petition fails to show that a POSITA would have found it obvious to implement the heating element of a vacuum tube with a screw plug of Gilbert to the Lee device. Resp. 26. More particularly, Patent Owner contends, "Petitioner fails to explain 'how' the combination would work and circumvents the clear signs of 'why' a POSITA would be dissuaded from combining Gilbert with Lee." *Id*. According to Patent Owner, modifying Lee with Gilbert "cannot be done without rendering Lee

inoperable." *Id.* at 28 (citing Ex. 2001 ¶¶ 100–105). Patent Owner provides a "visual depiction of what the Petitioner proposes as an implementation of Gilbert's bulb in the Lee device," reproduced below:




*Id.* at 29. Patent Owner argues that Gilbert's bulb, "which is designed to fit the length of the second chamber, cannot be disposed inside Lee for apparent reasons." *Id.* at 29–30 (citing Ex. 2001 ¶¶ 94–105). "A glaring defect of the proposed combination is the fact that Gilbert's bulb would obstruct the internal space of the second chamber of Lee, otherwise frustrating Lee's guide groove (D1)," which "is specifically designed to feed air from the first housing to the second housing, and into the vaporization chamber (142) through the air inlet (127) to be supplied to the heating element (133)," and such a combination "would change the basic principles under which Lee was designed to operate" and "would render Lee inoperable." Resp. 30–31 (citing Ex. 2001 ¶¶ 103–105). Moreover, "any attempt to incorporate Gilbert's bulb into Lee, assuming it is possible, would require a significant modification or redesign of Lee to include, amongst other things, an attachment socket to affix the bulb in contact with the battery," and a "POSITA would have been dissuaded" from doing so. *Id.* at 31–32 (citing Ex. 2001 ¶ 104).

Second, regarding the combination of Lee with Levin, Patent Owner argues that the "Petition fails to show that a POSITA would have found it obvious to implement the convective heating element of Levin in the Lee device, which heats by conduction." Resp. 32. More particularly, Patent Owner argues "Levin's express teachings dissuad[e] a POSITA from the utilization of conduction devices because of their significant drawbacks," i.e., Levin "discourages the use of a conductive heating device as being inferior to the significant advantages of using convection and radiation." *Id.* at 32–33. Patent Owner argues that there are two reasons why Petitioner's allegation "that a POSITA would have nevertheless been persuaded and motivated to combine Levin's heating element, designed for convection and radiation, with Lee's heating nichrome wire, which heats by conduction" is improper: (1) "the inclusion of a bulb encapsulating the nichrome wire taught in Lee would also encapsulate the fiber assembly that is supplying the nicotine solution from the fluid container," which "would result in the device becoming non-functional" and (2) Petitioner's reasoning, and Mr. Kodama's declaration in support thereof, is "misguided and inadequately supported" in that Mr. Kodama relies on three support references for his opinions that "do not amount to prior art." *Id.* at 33–38.

Finally, Patent Owner argues that "Petitioner fails to address 'how' Lee might be modified to include the heating element 51 and the cone-shaped reflector 52 described in Levin," because this "combination would either render Lee inoperable or require a significant reconstruction and/or redesign of the Lee device." Resp. 38–39 (citing Ex. 2001 ¶¶ 106–115).

Patent Owner argues that for Ground 2b, "dependent claims 7 and 8, which depend directly or indirectly from independent claim 1 are also not

obvious" because "the Petition fails to set forth a *prima facie* case of obviousness" for claim 1. Pet. 39–40.

*iii. Petitioner's Reply*

Regarding the combination of Lee and Gilbert, Petitioner argues that a "POSA would have been motivated to replace Lee's heating element with a bulb structure like that of Gilbert" for several reasons: (1) "Mr. Kodama explained the potential inhalation risks and metallic taste issues known to a POSA at the time of the alleged invention, both of which resulted from liquid directly contacting the heating wire" and "it therefore would have been desirable to heat liquid without having the liquid directly contact the wire;" and that Patent Owner's "prior art" argument about the three sources in Mr. Kodama's declaration "misses the point" (Reply 17–19); (2) "a POSITA would have been motivated to implement a heating element covered by a glass bulb to increase the life of the heating element and prevent failure of the device" (Reply 19–20 (citing Ex. 1003 ¶ 119)); (3) the concept of using "a heating element inside a bulb such as that claimed in the '788 patent" for vaporizing fluids dates back "to the 1920s, almost one hundred years ago" (Reply 20–21 (citing Ex. 1003 ¶¶ 39–48)); and (4) Patent Owner concedes that "the '788 patent discloses that a heating wire wrapped around a wick – similar to that used in Lee – is an acceptable alternative to the heating wire inside a bulb arrangement." Reply 21.

Petitioner further argues that the "Petition explained 'how' Lee would operate with a heater bulb," namely, "'by merely replacing [Lee's] heating element (133) with this bulb heater inside of the vaporization unit (14).'" Reply 21–22 (citing Ex. 1003 ¶ 123).

Finally, Petitioner argues that Patent Owner's "inoperability arguments do not address the Petition's proposed combination and rely on an erroneous bodily incorporation theory." Reply 23. Petitioner argues that "a POSA would have made the necessary modification so that a bulb heater could be used in Lee," including "(i) using a bulb of appropriate dimensions so as not to obstruct airflow in Lee, and (ii) connecting the heater bulb "to the electric circuit board (111) and battery assembly (11) in a very similar fashion to the nichrome wire heater represented in Lee." *Id.* at 25 (citing Ex. 1003 ¶ 123).

Regarding the combination of Lee and Levin, Petitioner argues that Levin does not teach away from conductive heating as argued by Patent Owner. Reply 25–26.

*iv. Patent Owner Sur-Reply*

First, Patent Owner argues that "Petitioners argue that modifying an electronic cigarette (Lee, Cohen, and Levin) with the components of an electronic cigarette (Gilbert) is elementary" to avoid explaining "how the purported combination would work without a significant reconstruction of the primary reference." Sur-reply 7. In particular, Patent Owner asserts that "Gilbert discloses a smokeless non-tobacco electric cigarette designed to raise the temperature of, not vaporize, the inhalant mixture," while Lee discloses an electronic cigarette that powers "a circuit board to control the operation of the device and vaporize a nicotine solution." *Id.* at 8 (citing Ex. 1004, 1:19–29; Ex. 1005 ¶¶ 1–4) (emphasis omitted). Therefore, Patent Owner argues, "Gilbert teaches away from the use of devices that vaporize substances and include electronics." *Id*.

Next, Patent Owner argues that "Petitioner fails to provide motivation outside improper hindsight reasoning that a POSITA would replace Lee's nichrome wire with a bulb." *Id.* at 10. Patent Owner restates its argument that Mr. Kodama's reliance on "postdated sources to support the proposition that a POSITA would combine Gilbert with Lee or Cohen with Gilbert demonstrates that Mr. Kodama and Petitioner are relying on hindsight." *Id.* at 11.

Furthermore, Patent Owner reiterates that "Petitioner provides no support for why it would be obvious to modify Lee." *Id.* at 12–15. Patent Owner relies on case law discussing teaching away, and criticizes Petitioner for offering "conclusory statements by Mr. Kodama" offering "a generic motivation for combining" without more. *Id.* at 13–14. Patent Owner also argues that Petitioner fails to provide evidence as to why it would have been obvious to combine Lee with Levin, because "Lee must be significantly reconstructed" in order to "incorporate Levin's bulb and holder into Lee." *Id.* at 19–22.

Finally, Patent Owner argues that Petitioner improperly changes its argument "after erroneously concluding it would have been obvious to combine Lee with Gilbert or Levin," by replacing Lee's nichrome wire with Gilbert's bulb. *Id.* at 15. "Notwithstanding the fact that Petitioner did propose replacing Lee's nichrome wire with Gilbert's bulb, replacing the nichrome wire with a bulb, such as Levin's, would require a substantial reconstruction and change of fundamental principles with respect to vaporization of Lee's fluid, rendering the combination non-obvious." *Id.* at 16. Because the "fiber rod is also held in position by the nichrome wire," Petitioner argues, if the wire were replaced, the fiber rod would need to be

altered, which would lead the fiber rod to (1) collapse and cease to make contact with the heating bulb and (2) dislodge the rod from its current position and flood the chamber. *Id.* at 17–18.

*v. Analysis: Ground 2a*

Patent Owner does not appear to dispute the portions of Petitioner's arguments having to do with whether Lee, Gilbert, Levin, and Weigensberg disclose the elements of the challenged claims. Rather, Patent Owner focuses its arguments on Petitioner's motivation to combine. We conduct our analysis accordingly.

Regarding Patent Owner's arguments that one of ordinary skill in the art would not have combined Lee and Gilbert or Levin, particularly with respect to element [1d], we are persuaded by Petitioner's arguments that one of ordinary skill in the art would have been motivated to make the combination with a reasonable expectation of success. Petitioner states that the motivation to make the combination would have come from issues "with e-cigarettes at the time, such as metallic taste issues or inhalation risks associated with the use of a metal wire heating element," and would have explored "heat conducting materials that could vaporize the nicotine liquid without making direct contact with the heating wire." Pet. 57 (citing Ex. 1003 ¶ 117 (discussing the metallic flavor "dry hit" problem)); *see also* Reply 18–19. Additionally, Petitioner argues that one of ordinary skill in the art would have implemented "a heating element within a glass bulb to increase the life of the heating element and prevent failure of a device." *Id.* at 57–58 (citing Ex. 1009 ¶ 4; Ex. 1003 ¶ 119), 59 (a "POSA would have been motivated to implement a heating element within a glass bulb like that described in Levin for all of the reasons described above" in connection with

Gilbert). Petitioner depicts one example of how its proposed combination would incorporate the Gilbert bulb into the Lee device. Pet. 57 (citing Ex. 1003 ¶ 118)). Petitioner additionally relies on Levin's disclosure that using a bulb will "allow for a consistent and reliable heat source" and "achieve a desired operating temperature when compared to conventional devices." *Id.* at 59 (citing Ex. 1009 ¶¶ 56, 49). Mr. Kodama also notes the age and ubiquity of bulb heaters, credibly testifying that "a POSA would have been motivated to implement a bulb heater in the Lee device, and, due at least to the ubiquitous nature of such heaters, the implementation of such a heater would have been well within the knowledge and skill of a POSA." Pet. 59; Reply 20; Ex. 1003 ¶¶ 39–48, 123.

Petitioner also provides sufficient explanation as to "how" and "why" the combination of proposed references would operate. As shown in Petitioner's proposed modification, the Gilbert bulb would have been modified to fit the Lee device. Pet. 57 (annotated Figure); Ex. 1003 ¶ 123 (stating that the combination would work "by merely replacing [Lee's] heating element (133) with this bulb heater inside of the vaporization unit (14)" and the "bulb heater could be connected to [Lee's] electric circuit board (111) and battery assembly (11) in a very similar fashion to the nichrome wire heater represented in Lee"); Reply 29–30 (explaining Petitioner's annotated figure wherein "the fiber rod is not encapsulated inside the bulb"); Ex. 1026 ¶¶ 29–30 (clarifying how the fiber in Petitioner's proposed combination from its annotated Figure in the Petition extends to, and makes contact with, the outside of the bulb, putting the fluid into direct contact with the bulb; explaining various simple ways a POSA would understand to accomplish this). We credit Petitioner's proposal and

Mr. Kodama's testimony in this regard. Therefore, we agree that Lee would not have to be "significantly modified or reimagined" as alleged by Patent Owner, nor would the inclusion of a bulb in the Lee device "render Lee inoperable" in view of the modifications to the Gilbert bulb included in Lee, as proposed by Petitioner. Resp. 30–31.

Although we acknowledge Patent Owner's depiction of its vision of the Gilbert bulb in the Lee device (Resp. 29), bodily incorporation is not the standard by which we judge obviousness. *Allied Erecting & Dismantling Co. v. Genesis Attachments, LLC*, 825 F.3d 1373, 1381 (Fed. Cir. 2016) ("'The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference,' but rather whether 'a skilled artisan would have been motivated to combine the teachings of the prior art references to achieve the claimed invention.'"). It does not follow that one of ordinary skill seeking to modify Lee's device with Gilbert's bulb for the heating of fluid would be limited to bodily incorporating the version of Gilbert's bulb depicted in Gilbert's figure. *See AliveCor, Inc. v. Apple Inc.*, 130 F.4th 1006, 1015 (Fed. Cir. 2025) (explaining that "[t]o restrict each reference's teaching to the particular way it implements [a technique] would improperly fail to read these references for all that they disclose"). Rather, we understand Petitioner's proposal as a modification of Gilbert's bulb to be incorporated into Lee's device, by one of ordinary skill in the art, making the appropriate adjustments, as shown in Petitioner's annotated Figure and as explained by Mr. Kodama. Pet. 57 (relying on Ex. 1003 ¶ 118); Reply 16–17 (the "combination amounts to nothing more than replacing Lee's heating element 133 with a bulb heater (EX1003, ¶123)"), 24–25, 29–30 ("the fiber

extends to, and makes contact with, the outside of the bulb, thus putting the fluid into direct contact with the bulb. EX1026, ¶29.").

Regarding Patent Owner's allegation that "a POSITA would have been dissuaded from including Gilbert's bulb in the Lee device," we do not view Gilbert as dissuading one of ordinary skill in the art from making the combination. Resp. 31–32; Sur-reply 8–9 (arguing that Gilbert teaches away from the combination because it is directed to an electric, rather than an electronic, cigarette). Petitioner has adequately demonstrated that the required elements are present in the prior art and has provided persuasive reasons for the combination. Pet. 52–64; Reply 16–30; *see also* Tr. 9:15–19 ("whether you call it electric or electronic, people use those words interchangeably. . . . Lee plus Gilbert or Levin have all the limitations, whether you call it an electronic or electric cigarette"). Similarly, regarding Patent Owner's allegation that Levin heats by convection and therefore Levin's "express teachings dissuad[e] a POSITA from the utilization of conduction devices because of their significant drawbacks," we do not view Levin as dissuading one of ordinary skill in the art from making the combination. Resp. 32. Petitioner notes that "Lee already uses conductive heating" and Levin describes "the use of conduction heating in embodiments of its device" and "even claims the use of conductive heating." Reply 26 (citing Ex. 1009 ¶¶ 13, 33, 37, 49, 51, 56–59, 99, claim 28). In a determination of obviousness, a reference may be relied upon for all that it would have reasonably suggested to one having ordinary skill in the art. *Merck & Co. v. Biocraft Labs*., 874 F.2d 804, 807 (Fed. Cir. 1989). A reference only teaches away "when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the

reference, or would be led in a direction divergent from the path that was taken by the applicant." *In re Mouttet*, 686 F.3d 1322, 1333–34 (Fed. Cir. 2012). For the reasons articulated above, we do not view either Gilbert or Levin as teaching away or dissuading one of ordinary skill in the art from making the proposed combination.

Patent Owner also takes issue with Mr. Kodama's reliance on three sources cited in paragraph 118 of his declaration. Resp. 35–39; Ex. 1003 ¶ 118 (identifying the three sources by hyperlinks). We are not persuaded that Mr. Kodama's reliance on these sources is in error. The sources "show the state of art at the relevant time, as is permissible." Reply 18 (citing *Plant Genetic Sys., N.V. v. DeKalb Genetics Corp.*, 315 F.3d 1335, 1344 (Fed. Cir. 2003)). We agree with Petitioner that evidence of a POSITA's background knowledge is not limited to prior art references. *See, e.g.*, *Qualcomm Inc. v. Apple Inc.*, 24 F.4th 1367, 1376 (Fed. Cir. 2022) ("[E]ven though evidence such as expert testimony and party admissions are not themselves prior art references, they are permissible evidence in an *inter partes* review for establishing the background knowledge possessed by a person of ordinary skill in the art."); *Yeda Research & Dev. Co. v. Mylan Pharms., Inc.*, 906 F.3d 1031, 1041–42 (Fed. Cir. 2018)) (holding that a petition may rely on non-statutory prior art as evidence of the motivation of a POSA to combine or modify the prior art). Based on our review of the testimony and references, we find that Mr. Kodama's reliance on these three references was not for the purpose of citing prior art, but was used to show the state of the art at the relevant time, which is permissible.

*vi. Ground 2b*

Claims 7 and 8 depend from claim 1 and inherit the all the claim limitations of claim 1. Our reasoning above, provided in the context of claim 1, applies with equal force to these dependent claims. Petitioner identifies where it believes every limitation of challenged dependent claims 7 and 8 is found in the combination of Lee, Gilbert, Levin, and Weigensberg. Pet. 64. Patent Owner does not present separate arguments as to these dependent claims. *See generally* Resp. We have reviewed Petitioner's evidence and arguments, and are persuaded on this complete record that Petitioner has shown by a preponderance of the evidence that claims 7 and 8 would have been obvious over the combination of Lee, Gilbert, Levin, and Weigensberg.

*vii. Conclusion on Obviousness Challenges Based on Lee*

Petitioner establishes that all of the challenged claims are obvious in view of the combined teachings of Lee and the secondary references.

*F. Obviousness Challenges Based on Gilbert and Cohen (Grounds 1a and 1b)*

Petitioner contends claims 1 and 11 are unpatentable as obvious in view of the combination of Gilbert and Cohen. Pet. 35–48. Petitioner also contends that claims 7 and 8 would have been unpatentable as obvious over Gilbert, Cohen, and Weigensberg. *Id.* at 48–52. Patent Owner opposes. Resp. 18–25.

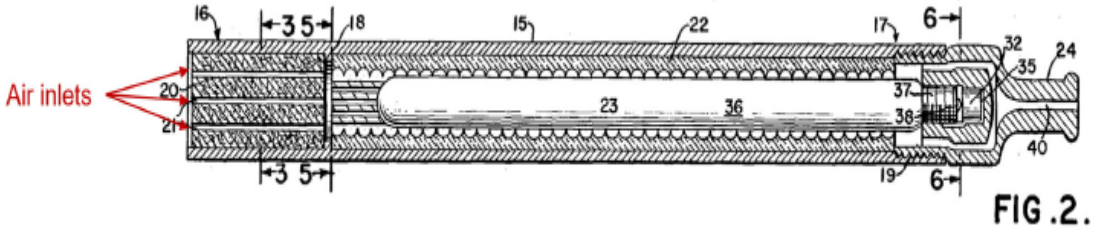
*i. Petitioner's Arguments*

As discussed above, claim 1 recites "a casing comprising a first chamber and a second chamber" (element [1a]). For this challenge, Petitioner contends Gilbert's outer end portion 16 and inner end portion 17 comprise external tube 15, which together with mouthpiece 24, disclose the

casing recited in element [1a]. Pet. 38–39 (citing Ex. 1004, 1:62–65, 1:72–2:2, 2:16–17, Figs. 1–2).

Regarding elements [1b]-[1g] and [1i], Petitioner alleges that Gilbert suggests these additional elements, i.e., a battery, a fluid containing member, a heating assembly, a fluid passageway, a tube element, a heating element, and wherein the heating wire heats the bulb. Pet. 39–45, 47–48.

With regard to element [1h], "an air inlet provided on an external wall of the casing," Petitioner contends Figure 2 of Gilbert depicts passages 21 in cartridge 20, which disclose the air inlet recited in element [1h]. Pet. 46–47 (citing Ex. 1004, 3:9–18, Fig. 2). Petitioner provides an annotated version of Figure 2 of Gilbert, reproduced below, to support its argument.




Petitioner's annotated version of Figure 2 of Gilbert shows a longitudinal section through a smokeless cigarette, and includes a label identifying passages 21 as "air inlets" at one end of the cigarette. Pet. 47.

*ii. Patent Owner Response*

Patent Owner argues that the Gilbert and Cohen combination "fails to disclose element **[1c]** 'a fluid containing member located in the second chamber,' element **[1h]** 'an air inlet provided on an external wall of the casing,' and element **[1i]** 'the bulb heats fluid introduced to and coming in contact with the bulb through the fluid passageway.'" Resp. 18.

First, Patent Owner argues that Gilbert does not disclose element [1c] "a fluid containing member located in the second chamber." *Id.* According

to Patent Owner, "Gilbert does not vaporize a fluid at all; rather, it is an electric device used to heat air that has been flavored by passing through a cartridge containing a porous material with flavoring." *Id*. at 19 (citing Ex. 1004, 3:10–14). More particularly, Patent Owner argues that "the substantially longer chamber disclosed by Gilbert is not partitioned by the adaptation of the mouthpiece, as proposed by Petitioner," and that a "POSITA would understand that no partition could exist as described by Petitioner." *Id.* at 20. "If the bulb were partitioned into a different chamber from the battery, as alleged by Petitioner, the bulb would not make contact with the battery as taught by Gilbert." *Id.* at 21.

Second, Patent Owner argues that Gilbert does not disclose element [1h] "an air inlet provided on an external wall of the casing." *Id.* More particularly, Patent Owner argues that the "cartridge, not the outer casing, includes 'longitudinal spaced passages 21, and the cartridge is detachable from the casing.'" *Id*. at 22 (citing Ex. 1004, 2:3–6). Thus, a "POSITA would understand that Gilbert does not and would not disclose an air inlet on its casing because it would otherwise allow the tumbling air around the heat source to escape and/or not heat up." *Id.* (citing Ex. 2001 ¶¶ 81–86).

Third, Patent Owner argues that Gilbert does not disclose element [1i] "wherein the bulb heats fluid introduced to and coming in contact with the bulb through the fluid passageway." *Id.* at 23. Patent Owner maintains that, in Gilbert "a **mixture** of atmospheric air with the suitable flavoring **is what flows into the heating chamber** to be heated up by the bulb. Ex. 2001, ¶¶87-92" unlike in element [1i], which "requires that the fluid from the fluid containing member in the second chamber make contact with the bulb." *Id.* at 24.

*iii. Petitioner's Reply*

First, Petitioner argues that Gilbert discloses element [1c] "a fluid containing member located in the second chamber." Reply 1. "Under the proper inquiry," Petitioner argues, "the focus must be on the '788 patent claim language 'second chamber,' and whether it encompasses the 'second chamber' of Gilbert identified in the Petition." *Id.* at 2. "The focus is not on the terminology Gilbert uses or what Gilbert may label as a chamber, but instead on what Gilbert discloses," which, Petitioner argues, is "the entirety of tube 15" as the second chamber. *Id.* at 2–3. Moreover, "Gilbert's shorter and longer chambers are not first and second chambers of the casing identified in the Petition and do not, together, constitute an electronic cigarette—rather, they are chambers of the tube 15, which is just one portion of the identified casing." *Id.* at 4 (citing Ex. 1004, 1:62–70).

Second, Petitioner argues that Gilbert's hollow shank discloses element [1g] "a sealing element forming a partition between the first and second chambers" because (1) the claim language does not require a sealing element or partition that divides the bulb from the battery; (2) "the sealing element of Gilbert identified in the Petition (hollow shank 25) *does not* prevent the bulb from contacting the battery;" (3) the "sealing element" need not form a complete physical barrier that isolates first and second chambers from one another; (4) the claim language does not require the heating assembly with bulb to be located *exclusively* in the second chamber; (5) Gilbert's "substantially longer chamber" does not receive battery 32; and (6) Patent Owner's "concentric" argument did not appear in the Response, and

there is no restriction in the claims against some portion of the chambers being radially concentric. *Id.* at 5–11.

Third, Petitioner argues that Gilbert discloses element [1h] "an air inlet provided on an external wall of the casing." *Id.* at 11. Petitioner argues that the Petition pointed to ambient air being drawn into the interior of the device via the opening formed at the end of the external tube (*id.* at 12) and that Mr. Kodama "clarifies that he was citing the large opening at the leftmost end of tube 15" as disclosing this element. *Id.* at 13 (citing Ex. 1026 ¶¶ 18–21).

Fourth, Patent Owner argues that Gilbert discloses element [1i] "the bulb heats fluid introduced to and coming in contact with the bulb through the fluid passageway," citing, *inter alia*, "column 1, lines 23-29 of Gilbert." *Id.* at 14. Petitioner faults Patent Owner for attempting "to distinguish Gilbert based on features that are not present in the claims." *Id.* at 15.

*iv. Patent Owner's Sur-reply*

Regarding element [1c], Patent Owner takes issue with Petitioner's argument that a "POSITA would consider the shank 25 the sealing element, rather than, or in addition to, the internal shoulder 18." Sur-reply 2. "Here, there is no question that the internal shoulder 18 partitions the tube into a longer chamber and a shorter chamber" and the "fluid cartridge 20 is in the shorter chamber, and the bulb 36 is in the larger chamber," argues Patent Owner; therefore, "Gilbert's fluid-containing member is not provided in the second chamber." *Id.* (citing Ex. 1004, 1:65–70, 2:5–15).

Regarding element [1h], Patent Owner argues that Petitioner now presents a new argument that was not previously considered, and that no

"misunderstanding" is present. *Id.* at 4 (citing *Netflix, Inc. v. DivX, LLC,* 84 F.4th 1371, 1377 (Fed. Cir. 2023)).

Regarding element [1i], Patent Owner argues that Gilbert's bulb raises the temperature of mixed air, not fluid. *Id.* at 5. "Not only does Gilbert disclose the inverse of the '788 Patent, but it is not designed to vaporize any fluid. Gilbert's heating bulb is designed to raise the temperature of the mixed air. Therefore, Gilbert does not disclose element [1i]." *Id.* at 7.

*v. Analysis: Ground 1a*

In the Institution Decision, we expressed concern with Petitioner's contention as to element [1h]. Inst. Dec. 18–19. Specifically, we noted that Gilbert discloses that flavor cartridge 20 including spaced passages 21 is "detachably fitted" into outer end portion 16 of external tube 15, and that the flavor cartridge fits snugly into the outer end portion of the tube, so that the cartridge is held in place "by friction or other suitable means." Ex. 1004, 2:3–10. Gilbert further discloses that in assembly, the flavor cartridge "can be introduced and removed without regard to the other units of the device." *Id.* at 2:55–57. We also noted that Petitioner did not address these disclosures in Gilbert. We stated that, in view of Gilbert's disclosure that its flavor cartridge is a separate unit of the cigarette and not part of the outer end portion of its external tube, the airflow passages in the flavor cartridge are not provided on the end portion of Gilbert's external tube. Therefore, in the Institution Decision, because Petitioner contended Gilbert's external tube corresponds to the casing recited in elements [1a] and [1h], we did not agree with Petitioner that Gilbert discloses an air inlet on an external wall of the casing as required in element [1h]. Inst. Dec. 19.

In its Response, Patent Owner argues that Petitioner "concedes" that Gilbert's outer end portion 16 and its inner end portion 17 comprise external tube 15, which comprises the "casing" (together with mouthpiece 24) in element [1a]. Resp. 21 (citing Pet. 38–39). Patent Owner further argues that cartridge 20, not the casing, includes the "longitudinal spaced passages 21" relied upon by Petitioner to meet the "air inlet" of element [1h], and Gilbert's cartridge, which includes air inlets 21, is a removable, fitted flavor cartridge disposed in the outer end portion 16 of the tube 15. *Id.* at 22; Ex. 2001 ¶ 82 ("According to Gilbert, the cartridge, which includes the air inlets 21, is a removable, fitted flavor cartridge disposed in the outer end portion 16 of the tube 15. Ex. 1004, 2:3–6."). Patent Owner argues that "Gilbert requires that its external casing be devoid of any openings to allow the tumbling air around the heat source to heat up as it traverses the elongated tube before escaping." Resp. 23 (citing Ex. 2005 ¶¶ 80–85, Ex. 1003 ¶¶ 92–93).

We are not persuaded that Petitioner's Reply and accompanying declaration remedy the Petition's deficiency in identifying the "air inlet provided on an external wall of the casing" of element [1h]. In its Reply, Petitioner asserts that the "Petition pointed to ambient air being drawn into the interior of the device via the opening formed at the end of the external tube," and provides an updated annotated Figure with a red arrow at the left pointing to an "Opening" and another updated annotated Figure 1 with a red arrow at the left pointing to an "Air inlet on external wall of casing." Reply 12 (citing Pet. 39, but parenthetically noting "('Opening' annotation added)"; Pet. 38, but parenthetically noting "('Air inlet' annotation added)"). Petitioner's Reply, however, fails to satisfy Petitioner's initial burden of

identifying correctly where every element is located in the references, with particularity. 35 U.S.C. § 312(a)(3) (a petition must identify, "in writing and with particularity, each claim challenged, the grounds on which the challenge to each claim is based, and the evidence that supports the grounds for the challenge to each claim"); 37 C.F.R. § 42.104(b)(4) (a petition "must specify where each element of the claim is found in the prior art patents or printed publications relied upon"). We agree with Patent Owner that Petitioner's argument that the opening at the end of the Gilbert device is what serves as the air inlet is new. Sur-reply 3–4 (citing *Netflix,* 84 F.4 at 1377; *Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1369–70 (Fed. Cir. 2016)). Accordingly, Petitioner's belated approach to the identification of the "air inlet" undercuts its argument as to element [1h] in its proposed combination of Gilbert and Cohen.

For the above reasons, Petitioner does not demonstrate by a preponderance of the evidence that claim 1 and claim 11 would have been obvious in view of the combined teachings of Gilbert and Cohen.

*vi. Ground 1b*

Petitioner identifies where it believes every limitation of challenged dependent claims 7 and 8 is found in the combination of Gilbert, Cohen, and Weigensberg. Pet. 48–52. Patent Owner does not present substantial separate arguments as to these dependent claims. Resp. 25.

As noted above, claims 7 and 8 depend from claim 1, and inherit the all the claim limitations of claim 1. Our reasoning above, provided in the context of claim 1, applies with equal force to these dependent claims. We have reviewed Petitioner's evidence and arguments, and are not persuaded on this complete record that Petitioner has shown by a preponderance of the

evidence that claims 7 and 8 would have been obvious over the combination of Gilbert, Cohen, and Weigensberg.

*vii. Conclusion on Obviousness Challenges Based on Gilbert*

For the above reasons, and the reasons stated by Patent Owner (Resp. 18–25, Sur-reply 1–7), we determine that Petitioner does not prove by a preponderance of the evidence that claims 1, 7, 8, and 11 would have been unpatentable as obvious based on the challenges based on Gilbert.

## III. CONCLUSION

Petitioner establishes by a preponderance of the evidence that claims 1, 7, 8, and 11 of the '788 patent are unpatentable. We summarize our decision in the following chart.

| Claim(s) | 35 U.S.C. § | Reference(s)/ Basis | Claims Shown Unpatentable | Claims Not Shown Unpatentable |
|---|---|---|---|---|
| 1, 11 | 103(a) | Gilbert, Cohen | | 1, 11 |
| 7, 8 | 103(a) | Gilbert, Cohen, Weigensberg | | 7, 8 |
| 1, 11 | 103(a) | Lee, Gilbert, Levin | 1, 11 | |
| 7, 8 | | Lee, Gilbert, Levin, Weigensberg | 7, 8 | |
| **Overall Outcome** | | | 1, 7, 8, 11 | |

## IV. ORDER

It is

ORDERED that Petitioner has proven by a preponderance of the evidence that claims 1, 7, 8, and 11 of the ’788 patent are unpatentable; and

FURTHER ORDERED that, because this is a Final Written Decision, any party to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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