

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

R.J. REYNOLDS VAPOR COMPANY,
Petitioner,

v.

ALTRIA CLIENT SERVICES LLC,
Patent Owner.

IPR2021-00652
Patent 10,264,824 B2

Before JAMES J. MAYBERRY, ELIZABETH M. ROESEL, and
SHEILA F. McSHANE, *Administrative Patent Judges*.

McSHANE, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

I. INTRODUCTION

R.J. Reynolds Vapor Company (“Petitioner”)¹ filed a Petition for *inter partes* review of claims 1–18 of U.S. Patent No. 10,264,824 B2 (Ex. 1002, “the ’824 patent”), along with the Declaration of Karl R. Leinsing. Paper 1 (“Pet.”); Ex. 1003. Altria Client Services LLC (“Patent Owner”)² filed a Preliminary Response, along with the Declaration of Joseph C. McAlexander. Paper 7 (“Prelim. Resp.”); Ex. 2001. Institution of an *inter partes* review is authorized by statute when “the information presented in the petition . . . and any response . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a) (2018). Upon consideration of the Petition, the Preliminary Response, and the evidence of record, we determine that Petitioner has established a reasonable likelihood of prevailing with respect to the unpatentability of at least one claim of the ’824 patent. Accordingly, for the reasons that follow, we institute an *inter partes* review of claims 1–18 of the ’824 patent.

A. Related Matters

The parties indicate this Petition is related to the district court litigation, *Altria Client Services LLC v. R.J. Reynolds Vapor Company*, No. 1:20-cv-00472-NCT-JLW (M.D.N.C.) (“the district court case”). Pet. 83; Paper 5, 1.

¹ Petitioner states that the real parties-in-interest are R.J. Reynolds Vapor Company, RAI Innovations Company, R.J. Reynolds Tobacco Company, and Reynolds Asia-Pacific Limited. Pet. 83.

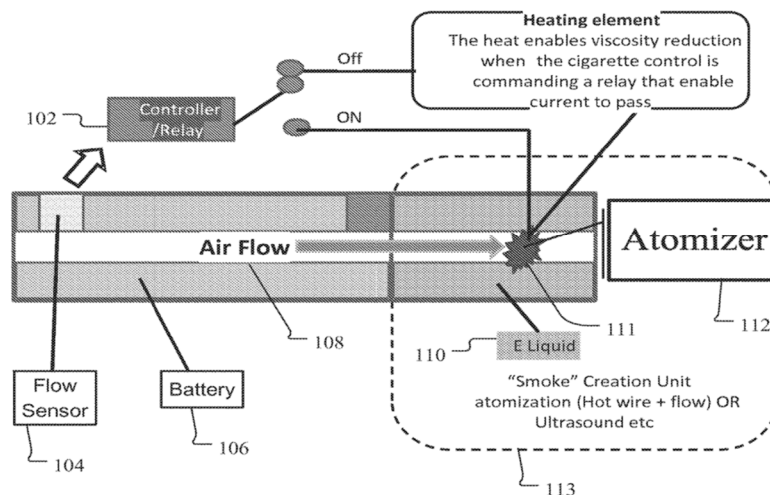
² Patent Owner states that Altria Client Services LLC is a wholly owned subsidiary of Altria Group, Inc. Paper 5, 1.

B. The '824 Patent

The '824 patent is titled "Cartridge Assembly For An Electronic Vaping Device" and issued on April 23, 2019 from an application filed on October 18, 2018. Ex. 1002, codes (22), (45), (54). The application for the '824 patent is a continuation of U.S. Application No. 15/918,440, filed on March 12, 2018, now U.S. Patent No. 10,143,242, and U.S. Application No. 14/109,393, now U.S. Patent No. 9,943,107, and claims priority to U.S. Provisional Application No. 61/737,847, filed December 17, 2012. *Id.*, codes (60), (63).

The specification of the '824 patent describes an electronic cigarette with improvements for flavor enhancement. *See* Ex. 1002, code (57), 1:18–21. Figure 1, reproduced below, is a diagram of an electronic cigarette. *Id.* at 2:11.

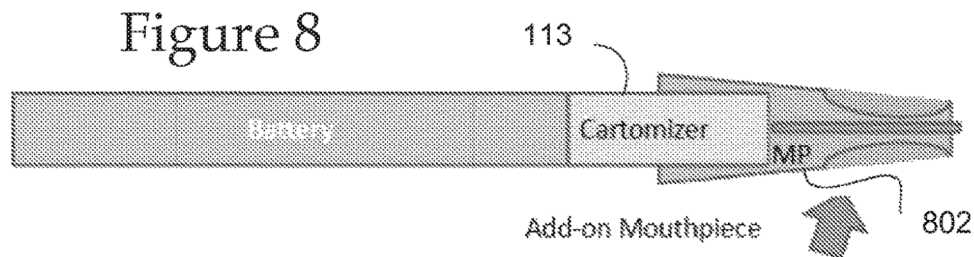
Figure 1



In Figure 1, above, there may be a battery portion 106 and cartomizer or cartridge 113 portion. Ex. 1002, 3:48–50. Cartomizer 113 is also referred to as “a cartridge” in the specification, and it may be disposable. *Id.* at 3:60–

62. Cartomizer 113 may include atomizer 112 and “e-liquid 110.” *Id.* at 3:59–60. E-liquid 110 is atomized via air flow 108, which is generated by the inhalation of the user. *Id.* at 3:65–4:1. E-liquid 110 may be soaked in a wick, which may be connected to a heating element 111. *Id.* at 4:1–3

Figure 8, reproduced below, is a view of the e-cigarette, with a mouthpiece included. Ex. 1002, 8:6–8.



As shown in Figure 8, above, the e-cigarette includes battery, cartomizer 113, and mouthpiece 802 portions. Ex. 1002, 8:6–11.

C. Illustrative Claim

Petitioner challenges claims 1–18 of the ’824 patent. Claims 1 and 10 are independent claims, and the remainder of the claims depend, directly or indirectly, from claims 1 and 10. Claims 1 and 10 are reproduced below, with bracketed letters added to the limitations for reference purposes.

1. A cartridge assembly for coupling to a battery portion of an electronic vaping device, the cartridge assembly comprising:

[a] a cartridge portion,

the cartridge portion being configured to generate a dispersion that is added to air flow through the cartridge,

[b] the cartridge portion including a heating coil wrapped around a wick,

[c] the cartridge portion including an airflow tube and an outer housing,

[d] the cartridge portion being filled with a liquid; and

[e] a mouthpiece connected to the cartridge portion,

[f] the mouthpiece being attached to an outer surface of the cartridge portion, and

[g] an end region of the cartridge portion extending into the mouthpiece [h] such that the mouthpiece surrounds at least a portion of the end region of the cartridge portion.

10. A cartridge assembly for coupling to a battery portion of an electronic vaping device, the cartridge assembly comprising:

[a] a housing,
the housing including an end region;

[b] an airflow tube in the housing;

[c] a wick in the housing;
a liquid in the housing,
a portion of the liquid on the wick,
a heating coil in the housing,
the heating coil wrapped around the wick,

[d] the heating coil for heating the portion of liquid on the wick to generate a dispersion that is added to air flow through the cartridge; and

[e] a mouthpiece connected to the housing,

[f] the mouthpiece being attached to an outer surface of the housing, and

[g] the end region of the housing extending into the mouthpiece [h] such that the mouthpiece surrounds at least a portion of the end region of the housing.

Ex. 1002, 9:2–22, 10:1–21.

D. Asserted Grounds of Unpatentability

Petitioner asserts that claims 1–18 are unpatentable based on the following grounds:

Claim(s) Challenged	35 U.S.C §	Reference(s)/Basis
1–4, 8, 10–13, 17	102(a)(2) ³	Chen ⁴
7, 9, 16, 18	103	Chen, knowledge of a person having ordinary skill in the art
5, 14	103	Chen, Dubief ⁵
6, 15	103	Chen, Sheikh ⁶ , Zheng ⁷
1, 2, 8–11, 17, 18	102(a)(1)	Lee ⁸
3, 4, 7, 12, 13, 16	103	Lee, Sheikh
5, 14	103	Lee, Dubief
6, 15	103	Lee, Sheikh, Zheng

Pet. 17–18.

II. DISCRETIONARY DENIAL

Patent Owner requests that we exercise our discretion under 35 U.S.C. § 314(a) to deny the Petition under *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 (PTAB Mar. 20, 2020) (precedential) (“*Fintiv*”). Prelim. Resp. 2–16.

³ The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (“AIA”), amended 35 U.S.C. § 103, effective March 16, 2013. Because, at this juncture, we have made a preliminary determination that the ’824 patent has an effective filing date after the effective date of the applicable AIA amendments, as discussed *infra* Section III.C, we refer to the post-AIA versions of 35 U.S.C. §§ 102, 103.

⁴ WO 2015/071703 A1, filed November 12, 2013, published May 21, 2015 (Ex. 1007, “Chen”).

⁵ WO 2013/083638 A1, filed December 5, 2012, published June 13, 2013 (Ex. 1013, “Dubief”).

⁶ US 2010/0031968 A1, published February 11, 2010 (Ex. 1014, “Sheikh”).

⁷ US 2013/0008457 A1, filed March 31, 2012, published January 10, 2013 (Ex. 1015, “Zheng”).

⁸ KR 10-2012-0080287, published July 17, 2012 (Ex. 1008, “Lee” (as translated)).

In assessing whether to exercise such discretion, the Board weighs the following factors:

1. whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted;
2. proximity of the court's trial date to the Board's projected statutory deadline for a final written decision;
3. investment in the parallel proceeding by the court and the parties;
4. overlap between issues raised in the petition and in the parallel proceeding;
5. whether the petitioner and the defendant in the parallel proceeding are the same party; and
6. other circumstances that impact the Board's exercise of discretion, including the merits.

Fintiv at 6. Recognizing that “there is some overlap among these factors” and that “[s]ome facts may be relevant to more than one factor,” the Board “takes a holistic view of whether efficiency and integrity of the system are best served by denying or instituting review.” *Id.*

On May 28, 2020, Patent Owner filed a complaint for infringement of the '824 patent against Petitioner in the related district court case. Prelim. Resp. 4. No stay has been granted in that case. *Id.* at 6. The invalidity grounds asserted in the district court case are similar to those asserted here. Pet. 13–14; Ex. 2007, 159–160. No trial date has been set in the district court case, but the District Court has issued a claim construction order and, according to the June 12, 2021 Amended Scheduling Order, fact discovery was supposed to have been completed by July 14, 2021, expert discovery will be completed on October 13, 2021, and dispositive motion briefing will be completed on December 22, 2021. Ex. 2003; Ex. 2009.

On August 9, 2021, Petitioner filed a Notice stating that it had filed a stipulation in the district court case stating that it would not pursue any ground raised or could have been reasonably raised in this *inter partes* review. Paper 8.

With this background in mind, we address the *Fintiv* factors.

A. Factor 1—Stay of Related Litigation Proceeding

Patent Owner contends that this factor, whether a stay has been granted or the evidence supports that one may be granted, weighs in favor of denial. Prelim. Resp. 6. Patent Owner asserts that Petitioner moved for a stay on April 26, 2021, but the motion has not been granted, and “recent practice shows that district courts will not grant a stay before an institution decision.” *Id.* Patent Owner argues that, even if the Board decides to institute review, in light of the advanced stage of the district court case, potential prejudice to Patent Owner as a result of a stay, and because the district court case includes multiple issues that are not the subject of this Petition, a stay of the case would be unlikely. *Id.* at 6–9.

Although Patent Owner presents its view of why the district court would not grant a stay, we decline to engage in speculation on whether the district court would order a stay. Accordingly, we determine that this factor is neutral.

B. Factor 2—Proximity of Court’s Trial Date

Petitioner asserts that no trial date has been set, and because of court delays and backlogs due to the COVID pandemic no trial is likely to occur until late 2022. Pet. 81.

Patent Owner contends that in the district court case, expert discovery will be concluded by October 2021, with dispositive briefing completed by

December 2021, and the only tasks remaining will be trial preparation and the trial itself. Prelim. Resp. 10. With the dispositive briefing deadline decision falling nine months before the due date of the final written decision, Patent Owner argues that it expects trial would be scheduled before the final written decision issues, so this factor favors denying institution. *Id.*

Absent a set trial date, we decline to speculate when a trial in the related district court case will be conducted. Accordingly, we determine that this factor weighs against exercising discretion to deny.

C. Factor 3—Investment in the Parallel Proceeding

Patent Owner argues that there has been significant investment in the district court case. Prelim. Resp. 10–13. Patent Owner asserts that the District Court has already conducted a claim construction hearing and issued a claim construction order, and fact discovery and expert discovery would be closed at the time of the institution decision issues. *Id.* at 11–12. Patent Owner contends that Petitioner waited ten months to file the Petition after the assertions of the district court case were known, with no explanation for the delay, while the litigation activities proceeded. *Id.* at 12.

We agree with Patent Owner that there has been a substantial investment in the district court case by both the parties and the court. Accordingly, this factor favors the exercise of our discretion to deny institution.

D. Factor 4—Overlap With Issues Raised in Parallel Proceeding

Patent Owner contends this factor favors denial of institution, because there is almost complete overlap between the validity issues raised in the Petition and in the related district court case, and because the main prior art

references advanced in the Petition, that is, Chen and Lee, are the same as those advanced in the district court case. Prelim. Resp. 13–14.

Petitioner filed a stipulation in the district court stating:

[I]f the Patent Trial and Appeal Board (“PTAB”) institutes the pending *inter partes* review petition in IPR2021-00652 challenging the patentability of claims 1–18 of U.S. Patent Number 10,264,824, then Reynolds will not pursue as to the challenged claims any ground raised or that could have been reasonably raised in the IPR in the above-captioned litigation.

Paper 8.

Concerns about the degree of overlap may be mitigated where a petitioner agrees not to pursue in the parallel district court litigation the grounds advanced in the petition. *Sand Revolution II, LLC v. Cont’l Intermodal Grp.–Trucking LLC*, IPR2019-01393, Paper 24, 11–12 (PTAB June 16, 2020) (Institution Decision) (informative). The Board suggested that a broader stipulation such as one stipulating that “it would not pursue any ground raised or that could have been reasonably raised in an IPR, i.e., any ground that could be raised under §§ 102 or 103 on the basis of prior art patents or printed publications” would better address concerns relating to overlapping issues. *Id.*

Here, Petitioner’s stipulation is broader, that is, “any ground raised or that could have been reasonably raised” has been waived. Petitioner’s stipulation is similar to that provided in *Sotera Wireless, Inc. v. Masimo Corp.*, IPR 2020-01019, Paper 12, 18–19 (PTAB Dec. 1, 2020) (Institution Decision) (precedential), which was found to obviate much, if not all, of any potential overlap between the issues in the proceeding and the district court

proceeding. This factor weighs strongly in favor of not exercising discretionary denial. *Id.*

E. Factor 5—Commonality of Parties in Parallel Proceedings

Patent Owner asserts that the Petitioner is a party to the district court proceeding. Prelim. Resp. 15. Petitioner does not challenge this contention. It is at least likely that, in the absence of a set trial date, the Board would address the patentability of the challenged patent before a trial in North Carolina. Accordingly, we determine that this factor is neutral.

F. Factor 6—Other Circumstances

Petitioner argues that the Petition has strong merits. Pet. 80–81. Patent Owner contends that the merits are weak and, more specifically, “under the plain and ordinary meaning of the claim term ‘cartridge,’ neither of the primary references Petitioner relies upon disclose a ‘cartridge’ and Petitioner’s theories fail as a result.” Prelim Resp. 15–16.

As discussed below, we have reviewed Petitioner’s unpatentability arguments and Patent Owner’s preliminary response, and based on the record before us, we disagree with Patent Owner that the merits are weak. Rather, we find that Petitioner has shown at least a reasonable likelihood of success on the merits, and, further, Petitioner’s showing is sufficiently strong as to weigh against exercising discretion to deny under factor 6. *See Fintiv*, Paper 11 at 14–15 (noting that the merits favor institution under factor 6 “if the merits of a ground raised in the petition seem particularly strong.”). That is, on this record, we determine that Petitioner has provided sufficient evidence of anticipation by two different primary references. *See infra* Sections III.E, I. Further, on this record, we do not agree with the Patent Owner’s interpretation of the term “cartridge,” which Patent Owner asserts

is the main basis of the weakness of Petitioner’s showing. *See infra* Sections III.B.1, E.3.a.i, I.2.

G. Conclusion

On this record, after weighing all of the factors and taking a holistic view, we determine that the facts in this case that weigh against exercising discretion outweigh the facts that favor exercising discretion. Thus, based on our assessment of the *Fintiv* factors, we decline to exercise our discretion under 35 U.S.C. § 314(a) to deny *inter partes* review.

III. ANALYSIS

A. Level of Ordinary Skill in the Art

Relying on the testimony of Mr. Leinsing, Petitioner proposes that a person of ordinary skill in the art at the time of the ’824 patent would have possessed a “Bachelor’s degree in mechanical engineering, electrical engineering, chemistry, or physics, or a related field, and over three years of relevant industry experience, or a Master’s degree in mechanical engineering, electrical engineering, chemistry, or physics, or a related field, and over two years of industry experience.” Pet. 15; Ex. 1003 ¶¶ 27–30. For purposes of this *inter partes* review, Patent Owner has adopted this definition. Prelim. Resp. 24 (citing Ex. 2001 ¶ 7).

In determining the level of ordinary skill in the art, various factors may be considered, including the “type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field.” *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (citation omitted). The level of ordinary skill in the art is also reflected by the prior art of record. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed.

Cir. 2001). For purposes of this Decision, we adopt the assessment offered by Petitioner as it is consistent with the '824 patent and the asserted prior art.

B. Claim Construction

In this *inter partes* review, claims are construed using the same claim construction standard that would be used to construe the claims in a civil action under 35 U.S.C. § 282(b). 37 C.F.R. § 42.100(b) (2021). Under the principles set forth by our reviewing court, the “words of a claim ‘are generally given their ordinary and customary meaning,’” as would be understood by a person of ordinary skill in the art in question at the time of the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)). “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).

In the related district court case, Judge N. Carton Tilley, Jr. issued an opinion on claim construction for several terms in the '824 patent claims. Ex. 2003.

1. “Cartridge”/“Cartridge Portion”/“Cartridge Assembly”

The parties dispute the meaning of the term “cartridge.” See Pet. 19–24; Prelim. Resp. 19–22.

Petitioner asserts that, based on Patent Owner’s contentions in the district court case, the term “cartridge” should be given its plain and ordinary meaning, which “is a *multi-piece structure* comprising a liquid

tank, a heating coil, a wick, an airflow tube and the structures connecting and containing these elements.” Pet. 19. More specifically, Petitioner refers to Patent Owner’s contentions that map the accused product to the claimed “cartridge” to support the proposed construction. *Id.* at 19–24.

Patent Owner contends that the plain and ordinary meaning of the term “cartridge” should be adopted and refers to several dictionary definitions of the term, such as Merriam Webster’s definition of a “cartridge” as “a case or container that holds a substance, device, or material which is difficult, troublesome, or awkward to handle and that usu[ally] can be easily changed . . . an often cylindrical container for insertion into a larger mechanism or apparatus,” and Cambridge Dictionary’s definition as “a container that is used in a larger piece of equipment, and which can be replaced with another similar part.” Prelim. Resp. 19–20 (citing Ex. 2001 ¶ 53; Ex. 2004, 4; Ex. 2005, 3; Ex. 2006, 3). Patent Owner argues that if it is necessary to construe the term, the construction should be “a case or container that holds a substance for insertion into a larger apparatus.” *Id.* at 19 (citing Ex. 2001 ¶ 53).

Patent Owner argues that Petitioner’s proposed construction is too narrow because “if ‘cartridge’ had the meaning Petitioner ascribes to it, the claim would not have needed to recite several limitations,” such as a “cartridge including an airflow tube and an outer housing” because that language is functionally redundant. Prelim. Resp. 20–21. Patent Owner also asserts that, with the addition of “and the structures connecting and containing these elements” to the proposed construction, Petitioner’s

construction is too broad because the thing that the cartridge is inserted into becomes the cartridge. *Id.* at 21.

In accordance with *Phillips*, “the claims themselves provide substantial guidance as to the meaning of particular claim terms.” *Phillips*, 415 F.3d at 1314. Here, claim 1 explicitly recites that a “cartridge” has certain components such as a heating coil wrapped around a wick and an airflow tube and outer housing, as well as those which allow it to be configured to generate a dispersion, and to be filled with liquid. Ex. 1002, 9:4–15.

The specification uses the terms “cartridge” and “cartomizer” interchangeably, and states that although a cartridge “may be disposable,” it does not have to be so. Ex. 1002, 3:60–62. The specification discloses, and Figure 1 of the ’824 patent shows, that the cartridge includes an atomizer and e-liquid storage. *Id.* at 3:59–60, Fig. 1. The specification, similarly to claim 1’s recitations, identifies components of the cartridge such as an atomizer and heating element connected to a wick, with components shown in Figure 1. *Id.* at 3:57–4:16, Fig. 1. The specification does not disclose how the cartridge is constructed, that is, how the components of the cartridge are assembled, and the associated figures of the patent are schematized and do not provide details of the assembly. There is also no disclosure as to how the cartridge is attached to the battery portion, short of that it is “connected” by an adapter, or to the mouthpiece, which is described as “attached” to the cartridge *Id.* at 3:50–51, 4:48–49.

Under Patent Owner’s interpretation of the plain and ordinary meaning, a “cartridge” would be required to be inserted into a larger apparatus—but there is nothing to suggest that the cartridge has to be inserted in a larger apparatus as the term is used in the ’824 patent. As

discussed above, per the specification, the cartridge is connected or attached to other portions of the electronic vaping device, but there is no requirement that it be inserted. Further, the dictionary definitions provided by Patent Owner are directed to the replaceability of a cartridge, but the '824 patent specification notes only that the cartridge “may be disposable,” but does not require that it be disposable.

At this juncture, we agree with Petitioner that, in view of the claim language and specification of the '824 patent, a “cartridge” is made up of multiple parts or components. And, although we agree with Patent Owner that identifying the components in the construction of the term “cartridge” would be redundant in view of the claim’s recitations, the intrinsic evidence supports that the cartridge has multiple components and is used for atomizing and liquid storage in an electronic vaping device. Ex. 1002, 3:57–4:44, 9:4–22 (claim 1); Fig. 1. We do not find sufficient intrinsic support for the inclusion of “and the structures connecting and containing these elements” in Petitioner’s proposed construction. For example, the specification discloses there may be an “adapter” connecting the battery portion and the cartomizer, and the adapter may be “part of the cartomizer.” Ex. 1002, 3:50–53. But there is no requirement for such an adaptor or other connecting structure, as provided in Petitioner’s construction. Nor do we find intrinsic support for requiring structure “containing” the elements of the cartridge, as Petitioner proposes.

We have reviewed the prosecution history and do not discern anything in it that would affect our preliminary analysis here. Ex. 1006. Additionally, although Judge Tilley addressed the term “cartridge” in a claim construction order, the analysis was limited to possible indefiniteness of the term in the claims of the '824 patent. Ex. 2003, 7–8. We do not

discern anything in the claim construction order that would affect our preliminary analysis here.

Accordingly, at this juncture and for the purposes of this Decision, we construe the term “cartridge” as “a multi-component structure used for atomizing and liquid storage in an electronic vaping device.” The parties are encouraged to provide additional briefing on the construction of this claim term, as the parties deem to be necessary.

We also note that the term “cartridge portion” is used in claim 1 of the ’842 patent. Ex. 1002, 9:7. The parties agree that the term “cartridge portion” is used in an equivalent manner to the term “cartridge.” Pet. 19, 24; Prelim. Resp. 19.

Additionally, we note that Petitioner and Patent Owner agree that the interpretation of “cartridge assembly” is the “cartridge portion”/“cartridge” plus the “mouthpiece.” Pet. 24, n.2; Prelim. Resp. 22.

2. Other Terms

We determine that we need not expressly construe any other claim terms to resolve the parties’ disputes on the current record. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (“[W]e need only construe 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))).

C. Priority Date of the ’824 Patent

Petitioner asserts that the ’824 patent is entitled to an effective filing date of December 17, 2013, which is the filing date of U.S. Application No. 14/109,393, which led to U.S. Patent No. 9,943,107. Pet. 14–15. According to Petitioner, the applicant asserted that the application for the ’824 patent

claimed the priority date of U.S. Provisional Application No. 61/737,847, that is, December 17, 2012. *Id.* at 14 (citing Ex. 1019, 4). Petitioner argues that “[d]espite this, the Examiner found that the ’824 patent claims were *not* entitled to the ’847 provisional’s filing date and instead found that all claims had an effective filing date of December 17, 2013, the filing date of nonprovisional US application 14/109,393.” *Id.* (citing Ex. 1006, 77). Petitioner points to the Examiner’s statement that the priority date of December 17, 2013 applies because “the claims contain subject matter that is not supported in the US Provisional Application 61/737,847 but are supported by US Application 14/109,393” and asserts that the Examiner is correct. *Id.* Patent Owner does not address the issue of the priority date of the ’824 patent at this stage of the proceedings. Prelim. Resp. 25, n.3.

The priority date of the ’824 patent appears to be relevant to whether the Chen reference, filed on November 12, 2013, is prior art to the ’824 patent. *See* Ex. 1007, code (22). At this juncture, we have considered Petitioner’s evidence concerning the ’824 patent priority date and determine, on a preliminary basis and for the reasons given by Petitioner (Pet. 14–15), that the ’824 patent is entitled only to the non-provisional Application No. 14/109,393 priority date of December 17, 2013. Accordingly, for purposes of this Decision, Chen is prior art to the ’824 patent.

D. Principles of Law

A claim is unpatentable under 35 U.S.C. § 102 if a prior art reference discloses each and every limitation of the claimed invention, either explicitly or inherently. *Glaxo Inc. v. Novopharm Ltd.*, 52 F.3d 1043, 1047 (Fed. Cir. 1995); *see MEHL/Biophile Int’l Corp. v. Milgraum*, 192 F.3d 1362, 1365 (Fed. Cir. 1999) (“To anticipate, a claim a prior art reference must disclose

every limitation of the claimed invention . . .;” any limitation not explicitly taught must be inherently taught and would be so understood by a person experienced in the field); *In re Baxter Travenol Labs.*, 952 F.2d 388, 390 (Fed. Cir. 1991) (the dispositive question is “whether one skilled in the art would reasonably understand or infer” that a reference teaches or discloses all of the limitations of the claimed invention).

A patent claim is unpatentable under 35 U.S.C. § 103 if “the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective date of the claimed invention to a person having ordinary skill in the art to which said subject matter pertains.” 35 U.S.C. § 103 (2011); *see also KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of 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 indicia of nonobviousness⁹. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

E. Asserted Anticipation of Claims 1–4, 8, 10–13, and 17 by Chen

Petitioner contends that claims 1–4, 8, 10–13, and 17 are unpatentable under 35 U.S.C. § 102 because they are anticipated by Chen. Pet. 36–55. In support, Petitioner also relies upon the Leinsing Declaration. Ex. 1003. Patent Owner argues that Chen does not disclose all the limitations of the claims. Prelim. Resp. 25–34.

⁹ No evidence of objective indicia of nonobviousness is presented in Patent Owner’s Preliminary Response. *See generally* Prelim. Resp.

We begin our discussion with a brief summary of Chen and then address the evidence and arguments presented.

1. Chen (Ex. 1007)

Chen is directed to electronic cigarettes, and, more specifically, to an atomizer unit. Ex. 1007, 1:3–5. Chen’s invention is directed to the improvement of the atomizer to reduce leakage and make liquid refilling easier. *Id.* at 3:1–12, 3:14–17.

Figure 1, reproduced below, is an exploded view of the constituent parts of Chen’s atomizer unit. Ex. 1007, 9:14–16.

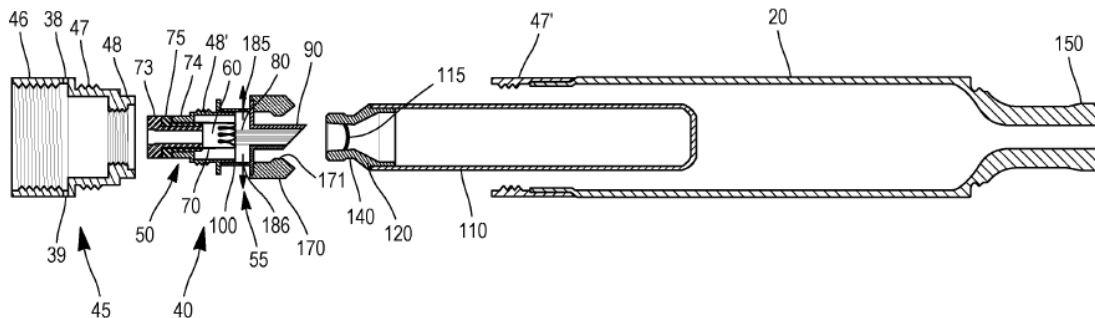


FIG. 1

In Figure 1, above, which shows the atomizer unit of the electronic cigarette, atomizing head 40 has support base 50, liquid guiding member 55, and liquid guiding fiber 80. Ex. 1007, 9:20–24. Liquid guiding fiber 80 has a first end extending into liquid guiding nozzle 90 and a second end attached to a wire heating coil “such that the liquid is transmitted from the disposable liquid container 110 to the wire heating coil for being vaporized by the latter.” *Id.* at 11:6–11.

Housing 20 of the atomizer unit is tubular in shape and includes mouthpiece 150. Ex. 1007, 11:28–30. Atomizer unit 10 also includes joint

member 45 that removably connects atomizing head 40 with the rear end of the housing 20 and the front end of a battery unit. *Id.* at 12:4–8.

Figure 2 of Chen, reproduced below, is an assembled sectional view of the atomizer unit connected to a battery portion of an electronic cigarette. Ex. 1007, 8:27–9:2.

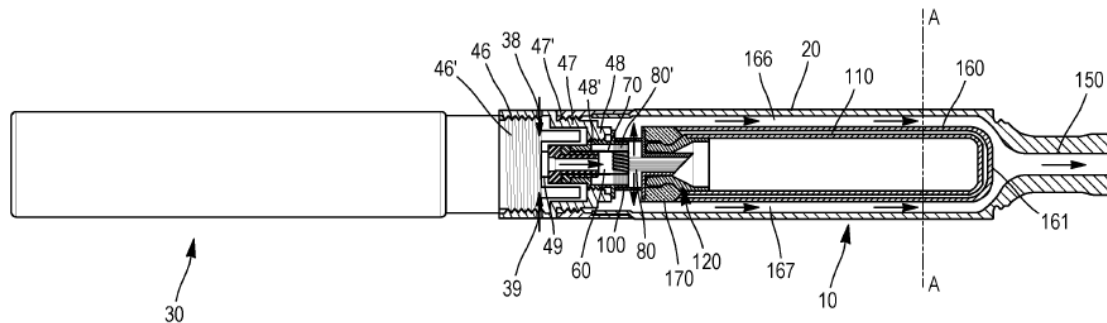


FIG. 2

As shown in Figure 1 and Figure 2, above, with interconnection of battery unit 30 with atomizer unit 40, first conductive tubular portion 73, which is the positive electrode of atomizing head 40, is connected to a conductive cylindrical portion 49 of battery unit 30, which is the negative electrode of battery unit 30. Ex. 1007, 13:13–20.

2. Discussion

a. Claim 1

The Petition asserts that the combination of Chen discloses all the limitations of claim 1. Pet. 36–48. Below we consider the claim 1 limitations in turn.

i. Preamble and Limitation 1[a]

Petitioner asserts that, to the extent that the preamble is limiting, Chen discloses a cartridge assembly, that is, a cartridge portion and a mouthpiece,

configured to be coupled with a battery portion. Pet. 36 (citing Ex. 1007, 21:18–20, Fig. 2; Ex. 1003 ¶ 199).

Petitioner contends that Chen discloses limitation 1[a] with its cartridge portion that includes disposable liquid container 110, atomizing head 40, containing a heating coil, wick and airflow tube, and joint member 45. Pet. 37 (citing Ex. 1007, 21:18–20, Fig. 1; Ex. 1003 ¶ 210). Petitioner asserts that Chen discloses the generation of a dispersion added to air flow by the vaporization of the liquid solution in the atomizing chamber, which is added to the air flow in the cartridge. *Id.* at 39 (citing Ex. 1007, 13:1–6, 18:16–18, Figs. 1, 2; Ex. 1003 ¶ 202).

Patent Owner argues that Petitioner does not address whether the preambles of claims 1 and 10 are limiting, which is contrary to Petitioner’s obligations. Prelim. Resp. 23 (citing 37 C.F.R. § 42.104(b)(3)). Patent Owner asserts that the preamble is limiting because it recites an essential structure necessary to give life to the claims. *Id.* at 23–24.

Patent Owner argues that “Petitioner has simply engaged in gratuitous box drawing” that is not justified in Chen, that is, there is no support for Petitioner’s mapping of certain portions of Chen to the claimed cartridge portion. Prelim. Resp. 29–30. Patent Owner contends that Chen fails to disclose a cartridge/cartridge portion or cartridge assembly because Petitioner’s identification of “cartridge” does not conform to the plain and ordinary meaning of the term. *Id.* (citing Ex. 2001 ¶ 83). Patent Owner asserts that in Chen the disposable liquid container 110 is the “cartridge,” and not the components mapped by Petitioner. *Id.* at 29 (citing Ex. 2001 ¶ 84). Patent Owner further argues that Chen refers to the “atomizing head” and “cartridge” separately, and Chen discloses that the liquid container is disposable. *Id.* at 31–32 (citing Ex. 1007, 1:16–21, 1:26–29, 2:5–32, 4:20–

24, 5:3–9; Ex. 2001 ¶ 86). Patent Owner argues that Chen’s atomizer head is not part of the cartridge and, if anything, it is part of the battery unit and not the liquid container. *Id.* at 32 (citing Ex. 2001 ¶ 86).

Patent Owner additionally argues that, even it is determined that Chen discloses a cartridge, Chen fails to disclose limitations of “a mouthpiece connected to the cartridge” and “the mouthpiece being attached to an outer surface of the cartridge” because the mouthpiece is connected to Chen’s joint member. Prelim. Resp. 33–34. Mr. McAlexander testifies that a person of skill would not have considered the joint member to be part of a cartridge. Ex. 2001 ¶ 88. Patent Owner additionally asserts that “if the cartridge somehow extends to the liquid storage portion, the atomizing head, *and* the joint member, it should also extend to include the battery unit as there is no difference in the connection between the pieces at this point.” Prelim. Resp. 34 (citing Ex. 2001 ¶ 89).

At this juncture, we find that the evidence sufficiently supports Petitioner’s contention that, in the view of one of ordinary skill in the art, Chen discloses a cartridge assembly and a cartridge portion. Patent Owner’s main argument is that Petitioner misidentifies the “cartridge” in Chen, which instead should consist only of Chen’s disposable liquid container 110, under Patent Owner’s view of the plain and ordinary meaning of the term. Prelim. Resp. 30. Here, however, as discussed *supra* Section III.B.1, we have not adopted Patent Owner’s proposed construction that would define a cartridge as a container or case that is inserted or plugged into a larger container. *See id.* at 19–20, 30. Instead, as discussed above, we have construed “cartridge” to be “a multi-component structure used for atomizing and liquid storage in an electronic vaping device.” Applying this construction and for purposes of institution, we find that Petitioner shows sufficiently that Chen teaches a

“cartridge assembly,” as recited in the preamble, and a “cartridge portion,” as recited in limitation 1[a]. As discussed in the claim construction section, neither the claims nor the specification discloses how the cartridge is constructed, such as requiring that the cartridge be integrally formed together. We note that Chen discloses that multiple components are connected together to form a structure, as shown in annotated Figure 2 above, with joint member 45 threaded onto atomizing head 40 and liquid cartridge 110 engaged to the assembly via protruding ring 171 fitted to discharge neck 120 to ensure no liquid leakage. Ex. 1007, 12:18–21, 15:8–26, Fig. 2. Thus, on this record, we find there is sufficient support for Petitioner’s assertion that Chen’s disposable liquid container, with atomizing head, which contains a heating coil, wick and airflow tube, and joint member, teach the claimed “cartridge portion.”

Patent Owner also argues that, if anything, Chen’s disposable liquid container should be considered to be the claimed “cartridge.” Prelim. Resp. 29. Patent Owner asserts that Chen refers to “cartridge” and “atomizing head” separately, and the “cartridge” corresponds to Chen’s disposable liquid container. *Id.* at 29–31. Patent Owner’s argument is based, in part, on its proposed construction for “cartridge,” which we do not adopt at this stage of the proceeding. *Id.* As discussed above in Section III.B.1, although a cartridge “may be disposable,” whether it is (or is not) disposable is not a requirement, as reflected in the claim construction for “cartridge” adopted here. Ex. 1002, 3:60–62. Additionally, although Chen may use the term “cartridge” differently than that term is used in claim 1 of the ’824 patent, the prior art’s description need not be *ipsissimis verbis* in order to teach or suggest the disputed claim limitation. *See In re Bond*, 910 F.2d 831, 832–33 (Fed. Cir. 1990).

Patent Owner further argues that Chen's joint member is not a part of a cartridge and, even if were, then the cartridge should also include the battery unit. Prelim. Resp. 34. For the reasons discussed above, we find sufficient support in Chen for Petitioner's mapping of Chen's joint member as part of a "cartridge," as we construe that term. Patent Owner's argument that the cartridge should also include the battery when the vaping device is fully assembled "because there is no difference in the pieces at this point" disregards that, even assembled, the device can be viewed as having battery, cartridge, and mouthpiece portions. *Id.* at 33–34. After considering Patent Owner's arguments, we find that, at this juncture, Petitioner has provided sufficient evidence in support of Chen's disclosure of "a cartridge portion" that generates a dispersion as recited in limitation 1[a].

On the issue of the disclosure of "cartridge assembly for coupling to a battery portion" recited in the preamble, we find that Petitioner's assertions and evidence as to Chen's disclosures are sufficient at this juncture. More specifically, we find sufficient support for Petitioner's contention that Chen discloses a cartridge portion and mouthpiece coupled to a battery portion, which is consistent with the parties' agreed-upon construction for the term "cartridge assembly." Pet. 36–37 (citing Ex. 1007, 21:18–20, Fig. 2; Ex. 1003 ¶ 199); *see supra* Section III.B.1. Patent Owner's arguments on alleged deficiencies in the disclosures of "cartridge assembly" are the same as addressed above for "cartridge." Prelim. Resp. 27–34. Additionally, in view of Petitioner's assertion that the preamble is disclosed in the prior art, which we find to be sufficiently supported, we do not discern that Petitioner is required, as Patent Owner argues (Prelim. Resp. 23), to include a position on whether the preamble of claim 1 is limiting. *See Nidec*, 868 F.3d at 1017.

Accordingly, at this juncture, we determine that Petitioner has provided sufficient evidence that Chen discloses the preamble and limitation 1[a] of claim 1.

ii. Limitation 1[b]

Petitioner asserts that Chen discloses “the cartridge portion including a heating coil wrapped around a wick.” Pet. 40. Petitioner argues that in the Chen cartridge, there is a wick within atomizing head 40, and liquid guiding fiber 80 transmits liquid from disposable liquid container 110 to the heating coil so that it can be vaporized. *Id.* (citing Ex. 1007, 11:6–10, Fig. 1; Ex. 1003 ¶¶ 203–204). Petitioner refers to Chen’s disclosure that “the second end of the liquid guiding fiber 80 which is attached to the wire heating coil comes into contact with the additional liquid guiding fiber 80’ which is wound by the wire heating coil.” *Id.* (citing Ex. 1007, 11:17–20, Figs. 1, 2).

Patent Owner relies on the same arguments for limitation 1[b] as it presents for 1[a]. Prelim. Resp. 24–37.

We have reviewed the record and determine that Petitioner has provided sufficient evidence that Chen discloses limitation 1[b].

iii. Limitation 1[c]

Petitioner asserts that Chen discloses “the cartridge portion including an airflow tube and an outer housing.” Pet. 41. Petitioner asserts that Chen discloses an air flow tube as well as a cartridge outer housing, that is, surfaces of disposable liquid container 110, atomizing head 40, and joint member 45. *Id.* at 40–41 (citing Ex. 1007, 12:31–13:4, Fig. 1; Ex. 1003 ¶¶ 206–207).

Patent Owner relies on the same arguments for limitation 1[c] as it presents for 1[a]. Prelim. Resp. 24–37. Additionally, we note that Patent Owner states that “the Petition is premised on construing ‘housing’ to mean

the outer surface of the cartridge, a construction that Patent Owner accepts,” but “Petitioner’s ‘housing’ arguments thus fail for the same reason its ‘cartridge’ arguments do.” *Id.* at 33, n.4.

We have reviewed the record and determine that Petitioner has provided sufficient evidence that Chen discloses limitation 1[c].

iv. Limitation 1[d]

Petitioner asserts that Chen discloses “the cartridge portion being filled with a liquid.” Pet. 43. Petitioner contends that Chen’s cartridge portion contains disposable liquid container 110, which is filled with a liquid. *Id.* (citing Ex. 1007, 1:7–13, 4:9–10, 19:23–24, Fig. 1; Ex. 1003 ¶¶ 208–209).

Patent Owner relies on the same arguments for limitation 1[d] as it presents for 1[a]. Prelim. Resp. 24–37.

We have reviewed the record and determine that Petitioner has provided sufficient evidence that Chen discloses limitation 1[d].

v. Limitation 1[e]

Petitioner asserts that Chen discloses “a mouthpiece connected to the cartridge portion.” Pet. 43. Petitioner contends that Chen discloses a mouthpiece, which includes housing 20, mouthpiece 150, and threaded portion 47’, and the mouthpiece is connected to joint tubular member 45, which is part of the cartridge. *Id.* at 43–44 (citing Ex. 1007, 11:28–2, 17:24–26, Figs. 1, 2; Ex. 1003 ¶¶ 210–211).

Patent Owner relies on the same arguments for limitation 1[e] as it presents for 1[a]. Prelim. Resp. 24–37.

We have reviewed the record and determine that Petitioner has provided sufficient evidence that Chen discloses limitation 1[e].

vi. Limitation 1[f]

Petitioner asserts that Chen discloses “the mouthpiece being attached to an outer surface of the cartridge portion.” Pet. 45. Petitioner contends that in Chen the mouthpiece is attached to the cartridge portion at the joint tubular member 45, and “the attachment is formed between the inner surface of the mouthpiece at threaded portion 47’ and the corresponding second threaded portion 47 on the outer surface of the joint tubular member 45.” *Id.* (citing Ex. 1007, 12:12–18, 17:24–26, Figs. 1, 2; Ex. 1003 ¶¶ 212–213).

Patent Owner relies on the same arguments for limitation 1[f] as it presents for 1[a]. Prelim. Resp. 24–37.

We have reviewed the record and determine that Petitioner has provided sufficient evidence that Chen discloses limitation 1[f].

vii. Limitations 1[g] and 1[h]

Petitioner asserts that Chen discloses “an end region of the cartridge portion extending into the mouthpiece.” Pet. 46. Petitioner refers to Figure 2 of Chen which shows that the end region of the cartridge portion, that is, the end of disposable liquid container 110, extends into the mouthpiece. *Id.* (citing Ex. 1007, Fig. 1; Ex. 1003 ¶¶ 214–215). Further, Petitioner argues that Chen discloses that the mouthpiece surrounds the end region of the cartridge. *Id.* at 47–48 (citing Ex. 1007, 11:28–43, Fig. 1; Ex. 1003 ¶¶ 216–217).

Patent Owner relies on the same arguments for limitations 1[g] and 1[h] as it presents for 1[a]. Prelim. Resp. 24–37.

We have reviewed the record and determine that Petitioner has provided sufficient evidence that Chen discloses limitations 1[g] and 1[h].

xii. Conclusion

Accordingly, we are persuaded that Petitioner has demonstrated a reasonable likelihood that it would prevail in showing that claim 1 is anticipated by Chen.

b. Claim 10

Petitioner presents evidence and argument in support of its contention that independent claim 10 is anticipated by Chen. Pet. 48–52. In large part, Petitioner relies upon the evidence and argument relied on for claim 1 to show anticipation of claim 10 by Chen. *See id.* We have reviewed the Petition’s showing for this claim and find that sufficient evidence has been provided in support of the challenges at this stage of the proceeding. Patent Owner relies on the same arguments for claim 10 as those presented for claim 1, which we address above. Prelim. Resp. 27–34.

Accordingly, we are persuaded that Petitioner has demonstrated a reasonable likelihood that it would prevail in showing that claim 10 is anticipated by Chen.

c. Claims 2–4, 8, 12, 13, and 17

Petitioner presents evidence and argument in support of its contentions that dependent claims 2–4, 8, 12, 13, and 17 are anticipated by Chen. Pet. 52–55. We have reviewed the Petition’s showing for these claims and find that sufficient evidence has been provided in support of the challenges at this stage of the proceeding. Patent Owner does not contest those claims separately. *See generally* Prelim. Resp.

Accordingly, we are persuaded that Petitioner has demonstrated a reasonable likelihood that it would prevail in showing that claims 2–4, 8, 12, 13, and 17 are anticipated by Chen.

F. Asserted Obviousness of Claims 7, 9, 16, and 18 over Chen and Knowledge of a Person Having Ordinary Skill in the Art

Petitioner contends that dependent claims 7, 9, 16, and 18 are unpatentable under 35 U.S.C. § 103(a) as obvious over Chen in view of the knowledge of a person having ordinary skill in the art. Pet. 62–79.

Petitioner presents evidence and argument in support of its contentions. *Id.* We have reviewed the Petition’s showing for these claims and find that sufficient evidence has been provided in support of the challenges at this stage of the proceeding. Patent Owner does not present arguments specific to these dependent claims, but rather only refers to the arguments made for claims 1 and 10, which are addressed above. Prelim. Resp. 34.

Accordingly, we are persuaded that Petitioner has demonstrated a reasonable likelihood that it would prevail in showing that claims 7, 9, 16, and 18 would be obvious over Chen in view of a person having ordinary skill in the art.

G. Asserted Obviousness of Claims 5 and 14 over Chen and Dubief

Petitioner contends that dependent claims 7, 9, 16, and 18 are unpatentable under 35 U.S.C. § 103(a) as obvious over Chen and Dubief. Pet. 59–60. Petitioner presents evidence and argument in support of its contentions. *Id.*

We begin our discussion with a brief summary of Dubief, and then address the evidence and arguments presented.

1. Dubief (Ex. 1013)

Dubief describes an aerosol generating device for heating an aerosol-forming substrate. Ex. 1013, 1:3–4. Figure 1, reproduced below, depicts an embodiment of an aerosol generating system. *Id.* at 16:14–15.

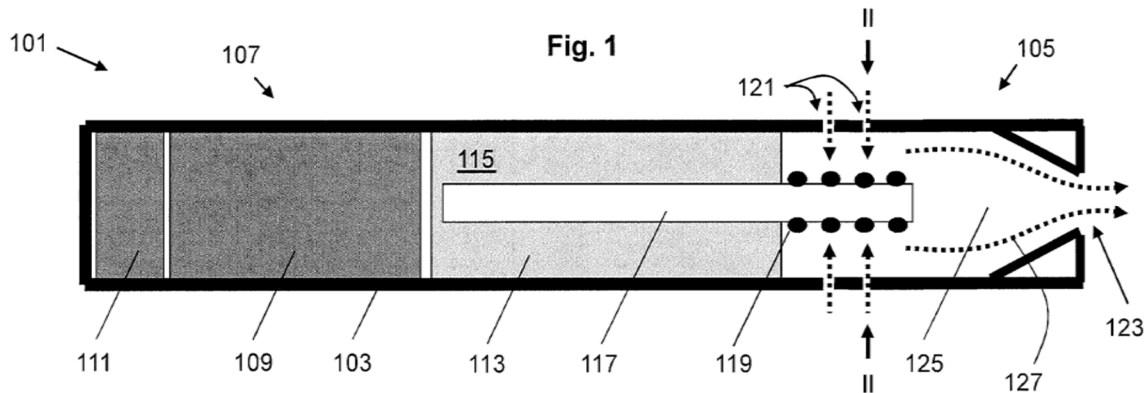


Figure 1, above, depicts an embodiment of an aerosol generating system within an electrically operated smoking system, which consists of battery 109, electric circuitry 11, storage portion 113 containing liquid 115, coil heater 119 with airflow vents 121, air outlet 123, and aerosol forming chamber 125. Ex. 1013, 16:21–17:4. The liquid used may include an aerosol-former that facilitates the formation of a dense and stable aerosol, such as glycerine and propylene glycol. *Id.* at 14:28–30.

2. Discussion

Claims 5 and 14 depend from claims 1 and 19, respectively, and recite “[t]he electronic vaping device . . . wherein the liquid includes glycerin and propylene glycol.” Ex. 1002, 9:29–30, 10:27–28. Petitioner argues that, although Chen does not teach the specific claimed ingredients, Dubief discloses these limitations. Pet. 59 (citing Ex. 1003 ¶¶ 89–90, 238; Ex. 1013, 14). Petitioner asserts that a person of ordinary skill would have been motivated to use glycerin and propylene glycol as aerosol formers because “they are classic aerosol-formers that are found in most vaping liquid formulations,” and were routinely incorporated into vaping liquids like those used in Chen. *Id.* at 59–60 (citing Ex. 1003 ¶¶ 87–92).

We have reviewed the Petition's showing for these claims and find that sufficient evidence has been provided in support of the challenges at this stage of the proceeding. Patent Owner does not present arguments specific to these dependent claims, but rather only refers to the arguments made for claims 1 and 10, which are addressed above. Prelim. Resp. 34.

Accordingly, we are persuaded that Petitioner has demonstrated a reasonable likelihood that it would prevail in showing that claims 5 and 14 would be obvious over Chen and Dubief.

H. Asserted Obviousness of Claim 6 and 15 over Chen And Sheikh Or Zheng

Petitioner contends claims 6 and 15 are unpatentable under 35 U.S.C. § 103(a) as obvious over Chen in combination with Sheikh or Zheng. Pet. 60–61.

We begin our discussion with brief summaries of Sheikh and Zheng, and then address the evidence and arguments presented.

1. Sheikh (Ex. 1014)

Sheikh describes an electronic smoking-substitute device. Ex. 1014, code (57). The device has a reservoir containing a liquid and the liquid is to be inhaled by the user. *Id.* ¶¶ 13–14. The liquid may be a mixture of a flavoring substance and water, nicotine, propylene glycol, and a scent. *Id.* ¶ 18. The flavoring substance may be tobacco, chocolate, coffee, apple, cherry, or mint. *Id.* ¶ 19.

2. Zheng (Ex. 1015)

Zheng is directed to preparation of liquids for e-cigarettes. Ex. 1015, code (57). The preparation methods include those for letting the natural aroma elements of tobacco enter the e-cigarette liquid. *Id.* ¶ 3.

3. Discussion

Claims 6 and 15 depend from claims 1 and 10, respectively, and recites “[t]he electronic vaping device . . . wherein the liquid has a tobacco fragrance.” Ex. 1002, 9:31–32, 10:30–31. Petitioner argues claims 6 and 15 would have been obvious over Chen in combination with Sheikh or Zheng. Pet. 60–61. Petitioner asserts that the ’824 patent admits that the use of tobacco fragrance in vaping liquid was known in the art, and both Sheikh and Zheng confirm the state of the art. *Id.* at 60 (citing Ex. 1002, 1:25–39). Petitioner points to Sheikh’s disclosure of a vaping liquid that includes “a mixture of water, propylene glycol, nicotine, and a scent,” with flavor options including “tobacco.” *Id.* (citing Ex. 1014 ¶ 7). Petitioner also refers to Zheng’s disclosure a method of creating a vaping liquid that “makes the aroma and taste come from the tobacco and be closer to those of cigarettes” such that “the aroma elements of tobacco can directly enter the extract.” *Id.* (citing Ex. 1015 ¶¶ 3, 10). Petitioner argues that a person of ordinary skill in the art would have been motivated to use tobacco fragrance in the vaping liquid, as tobacco fragrance was known to improve the user’s experience and better simulate smoking traditional cigarettes. *Id.* (citing Ex. 1003 ¶¶ 83–86, 239–241).

We have reviewed the Petition’s showing for these claims and find that sufficient evidence has been provided in support of the challenge at this stage of the proceeding. Patent Owner does not present arguments specific to these dependent claims, but rather only refers to the arguments made for claims 1 and 10, which are addressed above. Prelim. Resp. 34.

Accordingly, we are persuaded that Petitioner has demonstrated a reasonable likelihood that it would prevail in showing that claims 6 and 15 would be obvious over Chen in combination with Sheikh or Zheng.

I. Asserted Anticipation of Claims 1, 2, 8–11, 17, and 18 by Lee

Petitioner contends that claims 1, 2, 8–11, 17, and 18 are unpatentable under 35 U.S.C. § 102 because they are anticipated by Lee. Pet. 61–77. In support, Petitioner also relies upon the Leinsing Declaration. Ex. 1003. Patent Owner argues that Lee does not disclose all the limitations of the claims. Prelim. Resp. 34–43.

We begin our discussion with a brief summary of Lee, and then address the evidence and arguments presented.

1. Lee (Ex. 1008)

Lee is directed to the structure of an e-cigarette. Ex. 1008, code (57). Figures 1A and 1B, reproduced below, illustrate an embodiment of an e-cigarette. *Id.* ¶ 16.

FIGURE 1a

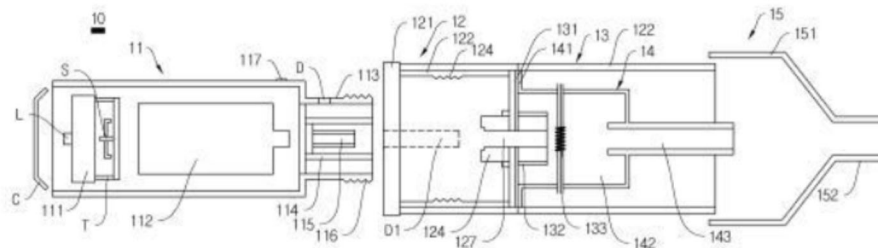


FIGURE 1b

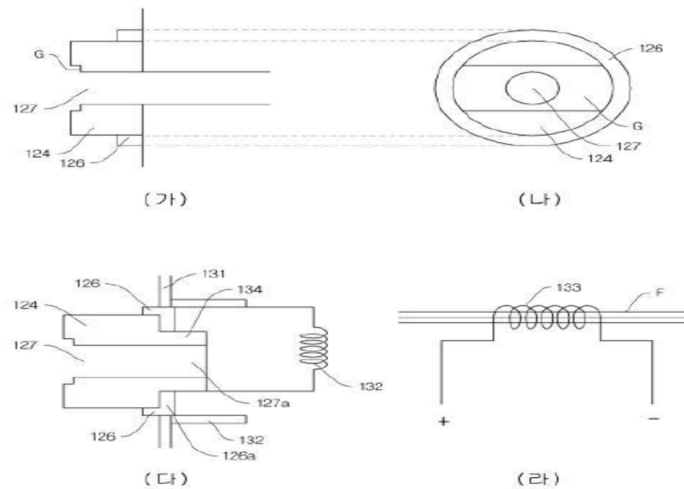


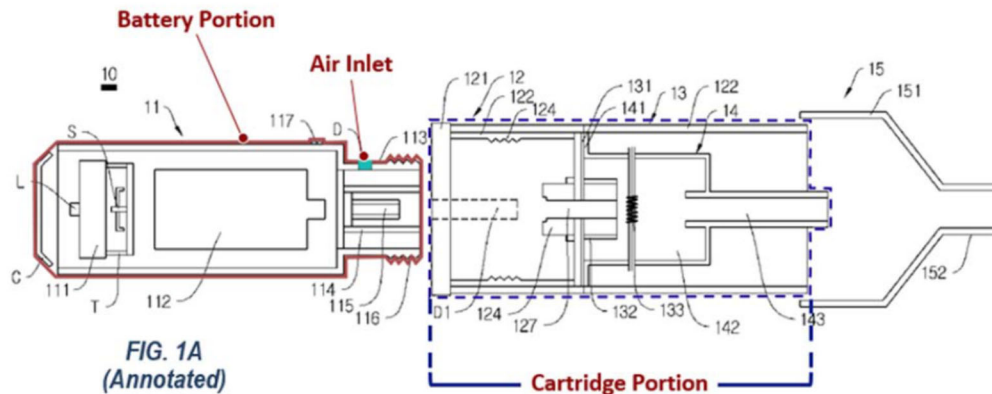
Figure 1A, above, includes connection chamber (113) with connecting screw surface (116) serving to connect battery assembly (11) with guide chamber (12), and including air guide path (115) and inlet hole (113). Ex. 1008 ¶¶ 19, 21–22. Storage housing (13) stores a nicotine solution, as well as housing vaporization unit (14). *Id.* ¶ 20. Vaporized nicotine solution is discharged to the outside of vaporization unit (14) and storage housing (13) through discharge tube (144) that may be sucked through inhalation piece (15). *Id.* ¶ 33. Figure 1B shows a cross-sectional view and a plan view of connecting piece (124), with heating element (133). *Id.* ¶¶ 26, 28.

2. Discussion

For claim 1, Petitioner asserts that Lee discloses the preamble, a cartridge assembly coupled to a battery portion of an electronic vaping device. Pet. 61 (citing Ex. 1008 ¶¶ 19, 28, 33; Fig. 1003 ¶ 242).

For limitation 1[a], Petitioner contends that Lee discloses the claimed cartridge/cartridge portion by its disclosure of storage housing 13 and guide chamber 12, which contain a heating coil, wick and airflow tube. Pet. 62

(citing Ex. 1008 ¶¶ 28, 33; Ex. 1003 ¶ 248). Petitioner presents annotated Figure 1A of Lee, reproduced below. *Id.* at 63.



Petitioner contends that, as depicted above in annotated Figure 1A above, Lee discloses a cartridge portion, that is storage housing 13 and guide chamber 12, configured to generate a dispersion that is added to the air flow through the cartridge. Pet. 63 (citing Ex. 1003 ¶ 243).

Patent Owner makes several arguments as to why Lee does not teach the claimed “cartridge portion,” including alleging the same deficiencies as in Chen. Prelim. Resp. 39–44. After considering Patent Owner’s arguments, we determine that Petitioner’s arguments and evidence are sufficient for the reasons discussed above for Chen.

Patent Owner also makes a few arguments more specifically directed to Lee. Prelim. Resp. 40–42. The first is that storage housing 13 and guide chamber 12 are discrete, separate components that are physically separated by a dividing wall 131 and, for this reason, these components cannot be considered to be a “cartridge.” *Id.* at 40–41 (citing Ex. 2001 ¶¶ 108–110; Ex. 1008 ¶ 28, Fig. 1a). On this issue, although Lee discloses a dividing wall, our preliminary view is that Lee nonetheless has connecting piece 124 of the guide chamber, with its air inlet piece 127 connected to the inside of

storage housing (Ex. 1008 ¶¶ 19, 27, Fig. 1a), and both compartments act to direct air flow to the heating coil for adding a dispersion (*id.* ¶¶ 25–28). At this stage of the proceeding, we find that evidence provided by Petitioner is sufficient to demonstrate that the compartments are part of a “cartridge.”

Patent Owner additionally argues that Lee’s “cartridge” should be considered the portion of the device containing the nicotine solution that can be exchanged, and Lee does not identify another exchangeable cartridge. Prelim. Resp. 41 (citing Ex. 1008 ¶¶ 2, 19; Ex. 2001 ¶ 110). However, as discussed above for Chen, a prior art reference does not have to use the same nomenclature for components in order to teach the limitations of a claim. Further, claim 1 does not recite that a cartridge has to be exchangeable or replaceable. Accordingly, we find that Petitioner has provided sufficient evidence showing Lee’s disclosure of the preamble and claim limitation 1[a].

For limitation 1[b], Petitioner contends that within Lee’s storage housing 13, which is part of the cartridge, there is vaporization unit 14, which includes a heating coil (heating element 133) wrapped around a wick (fiber assembly F). Pet. 64 (citing Ex. 1008 ¶¶ 28, 33; Ex. 1003 ¶ 244). For limitation 1[c], Petitioner contends that in Lee there is an airflow tube (air conduit 127a) within the cartridge, and the cartridge has an outer housing. *Id.* at 65–66 (citing Ex. 1008, Figs. 1A, 1B; Ex. 1003 ¶¶ 246–247). For limitation 1[d] Petitioner contends that Lee discloses “a storage container for supplying nicotine solutions,” and the solution is stored in storage housing 13. *Id.* at 66–67 (citing Ex. 1008 ¶¶ 17, 20; Ex. 1003 ¶ 248). For limitations 1[e], 1[f], and 1[g], Petitioner argues that Lee discloses a mouthpiece that is connected to the outer surface of the cartridge where the end region of the

cartridge extends into the mouthpiece, and the mouthpiece surrounds the end of the cartridge. *Id.* at 67–70 (citing 1008, Fig. 1A; Ex. 1003 ¶¶ 249–257).

We find that, for purposes of institution, Petitioner has provided sufficient evidence demonstrating Lee’s disclosure of claim limitations 1[b] through 1[h], and Patent Owner presents no arguments disputing the specific teachings of the asserted prior art for these limitations. *See generally* Prelim. Resp.

Petitioner also argues that independent claim 10 and dependent claims 2, 8–11, 17, and 18 of the ’824 patent are anticipated by Lee. Pet. 70–77. We have reviewed the Petition’s showing for these claims and find that sufficient evidence has been provided in support of the challenge at this stage of the proceeding. Patent Owner presents no arguments specific to the challenges to these claims. *See generally* Prelim. Resp.

Accordingly, we determine the information presented shows a reasonable likelihood that Petitioner would prevail in establishing that challenged claims 1, 2, 8–11, 17, and 18 are anticipated by Lee.

J. Asserted Obviousness of Claims 3–7 and 12–16 over Lee In Combination with Sheikh, Dubief, or Zheng

Petitioner asserts that claims 3, 4, 7, 12, 13, and 16 would have been obvious over Lee and Sheikh; claims 5 and 14 would have been obvious over Lee and Dubief; and claims 6 and 15 would have been obvious over Lee and Sheikh or Zheng. Pet. 77–80. Patent Owner presents no arguments specific to the challenges to these claims. *See generally* Prelim. Resp.

We have reviewed the argument and supporting evidence provided in the Petition and determine that Petitioner has sufficiently shown, for purposes of institution, that the combination of Lee and Sheikh teaches the limitations of claims 3, 4, 7, 12, 13, and 16; that the combination of Lee and

Dubief teaches the limitations of claims 5 and 14; that the combination of Lee and Sheikh or Zheng teaches the limitations of claims 6 and 15; and that a person of ordinary skill in the art would have had reason to combine the respective references in the manner Petitioner proposes. Accordingly, we determine the information presented shows a reasonable likelihood that Petitioner would prevail in establishing that challenged claims 3–7 and 12–16 would have been obvious over the asserted references.

IV. CONCLUSION

For the foregoing reasons, we determine that the information presented establishes a reasonable likelihood that Petitioner would prevail in showing at least one of claims 1–18 of the '824 patent is unpatentable under 35 U.S.C. § 103.

V. ORDER

Accordingly, it is:

ORDERED that pursuant to 35 U.S.C. § 314(a), an *inter partes* review is hereby instituted as to claims 1–18 of the '824 patent on the grounds set forth in the Petition; and

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial; the trial will commence on the entry date of this decision.

IPR2021-00652
Patent 10,264,824 B2

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