

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

JT INTERNATIONAL S.A.
Petitioner,

v.

FONTEM HOLDINGS 1 B.V.
Patent Owner.

Case No. IPR2015-01513
Patent No. 8,375,957

**PATENT OWNER PRELIMINARY RESPONSE TO PETITION FOR
INTER PARTES REVIEW**

TABLE OF CONTENTS

I.	INTRODUCTION	1
II.	PETITIONER IS ESTOPPED FROM INITIATING <i>INTER PARTES</i> REVIEW OF THE '957 PATENT UNDER 35 U.S.C. § 315(b)	3
A.	Legal Standard.....	3
B.	Relevant Timeline	4
C.	Petitioner is in Privity with Logic in the Logic Litigation.....	6
III.	THE '957 PATENT	7
IV.	CLAIM CONSTRUCTION	8
A.	"electronic cigarette or cigar" and "electronic cigarette"	9
B.	"atomizer"	11
C.	"screwthread electrode"	12
D.	"solution storage area"	14
E.	"porous component"	16
V.	THE PETITION FAILS TO SHOW A REASONABLE LIKELIHOOD THAT ANY CLAIM OF THE '957 PATENT IS UNPATENTABLE.....	17
A.	Ground 1: Claims 1, 3, 5-9, and 23 are Not Obvious over Hon '134 in View of Takeuchi	18
1.	Hon '134	18
2.	Takeuchi	20
3.	Independent Claims 1 and 23 of the '957 Patent are Not Obvious over Hon '134 and Takeuchi.....	21
a.	Hon '134 Does Not Disclose a "Screwthread Electrode" as Required by Claims 1 and 23	22
b.	Hon '134 Does Not Disclose a Screwthread, Much Less a Screwthread Electrode, on an Atomizer Assembly Housing or a Battery Assembly Housing	25
c.	Hon '134 Does Not Disclose an Atomizer Assembly Housing Containing a Solution Storage Area.....	27

d.	Petitioner Fails to Show that Hon '134 Discloses an Atomizer Including a Porous Component	28
e.	The Intercommunicating Pore Structure of Takeuchi is Not Part of the Atomizer	29
f.	One of Ordinary Skill in the Art Would Not Incorporate the Porous Component of Takeuchi into the Device of Hon '134.....	31
g.	Petitioner Does Not Identify Any Disclosure in Hon '134 or Takeuchi That Would Lead to the Specific Arrangement of Elements Recited in Claims 1 and 23	32
4.	Dependent Claims 3 and 5-9 of the '957 Patent are Not Obvious over Hon '134 and Takeuchi.....	33
B.	Ground 2: Claims 1-3, 5-12, 14, 16-18, and 21-24 are Not Obvious over Hon '134 in View of Takeuchi and Pienemann.....	35
1.	Pienemann.....	35
2.	Independent Claims 1, 10, and 23 of the '957 Patent are Not Obvious over Hon '134 in View of Takeuchi and Pienemann.....	37
a.	Pienemann Does Not Overcome the Deficiencies of Hon '134 and Takeuchi.....	38
b.	Petitioner Fails to Provide Any Rationale for Combining Hon '134 with Takeuchi and Pienemann.....	38
c.	Pienemann Does Not Disclose a Screwthread Electrode Connecting an Atomizer Assembly Housing and a Battery Assembly Housing or a Solution Storage Area.....	39
3.	Dependent Claims 2, 3, 5-9, 11, 12, 14, 16-18, 21, 22, and 24 of the '957 Patent are Not Obvious over Hon '134 in View of Takeuchi and Pienemann.....	40
C.	Ground 6: Claims 1-12, 14-18, and 21-24 are Not Obvious over Cox in View of Whittemore and Pienemann	41
1.	Cox	42
2.	Whittemore.....	43
3.	Independent claims 1, 10, and 23 of the '957 Patent are Not Obvious over Cox, Whittemore, and Pienemann	44

a.	The Devices of Cox and Whittemore Are Not Electronic Cigarettes.....	45
b.	One of Ordinary Skill in the Art Would Not Have Incorporated the Screwthreads of Whittemore or Pienemann Into the Cox Device	46
4.	Dependent Claims 2-9, 11, 12, 14-18, 21, 22, and 24 are Not Obvious over Cox, Whittemore, and Pienemann	48
D.	Ground 8: Claims 1-3, 6-12, 14, 16-18, and 21-24 are Not Obvious Over Susa in View of Pienemann.....	48
1.	Susa	48
2.	Independent Claims 1, 10, and 23 of the '957 Patent are Not Obvious over Susa and Pienemann.....	50
a.	One of Ordinary Skill in the Art Would Not Have Incorporated the Screwthreads of Pienemann Into the Susa Device.....	50
b.	Susa Does Not Disclose a Heating Coil Wound Around a Porous Component	51
c.	Susa Does Not Disclose a Fiber Material in a Solution Storage Area.....	52
E.	Ground 9: Claims 1-4, 6-9, 14, 16-18, and 21-24 Are Not Obvious Over Susa in View of Pienemann and McRae	52
F.	Ground 10: Claims 1-3, 6-12, 14, 16-18, and 21-24 Are Not Obvious Over Susa in View of Pienemann and Whittemore.....	53
G.	Ground 13: Claims 1, 3, 6-9, and 23 Are Not Obvious Over Counts in View of Whittemore and McRae.....	54
1.	Independent Claims 1 and 23 of the '957 Patent are Not Obvious over Counts, Whittemore, and McRae.....	54
a.	One of Ordinary Skill in the Art Would Not Incorporate the Screwthread of Whittemore Into the Counts Device.....	55
b.	Counts Does Not Disclose a Solution Storage Area	56
2.	Dependent Claims 3 and 6-9 of the '957 Patent are Not Obvious over Counts, Whittemore, and McRae.....	57
H.	Ground 14: Claims 2, 10-12, 14, 16-18, 21, 22, and 24 Are Not Obvious Over Counts, Whittemore, McRae, and Pienemann	58
I.	Grounds 3-5, 7, 11, 12, 15, and 16: Claims 4, 13, 15 are Not Obvious Over Counts, Whittemore, McRae, and Hon '043.....	59

VI. CONCLUSION.....	60
---------------------	----

TABLE OF AUTHORITIES

CASES

<i>Fontem Ventures B.V. et al. v. Logic Tech. Dev. LLC</i> , No. 14-cv-1654 (C.D. Cal.)	4
<i>Gen. Electric Co. v. Transdata, Inc.</i> , IPR2014-01380, Paper 34 (PTAB April 15, 2015)	3, 4, 6
<i>Gonzalez v. Banco Cent. Corp.</i> , 27 F.3d 751 (1st Cir. 1994)	3-4
<i>In re Kahn</i> , 441 F.3d 977 (Fed. Cir. 2006)	31
<i>KSR Int'l Co. v. Teleflex, Inc.</i> , 550 U.S. 398 (2007)	31
<i>Otsuka Pharm. Co. v. Sandoz, Inc.</i> , 678 F.3d 1280 (Fed. Cir. 2012)	2, 22
<i>Phillips v. AWH Corp.</i> , 415 F.3d 1303 (Fed. Cir. 2005)	9
<i>Taylor v. Sturgell</i> , 553 U.S. 880 (2008)	3, 6
<i>Tempo Lighting v. Tivoli</i> , 742 F.3d 973 (Fed. Cir. 2014)	9
<i>VMWare v. Good Tech. Software, Inc.</i> , IPR2015-00031, Paper 11 (PTAB Mar. 6, 2015)	4, 7
<i>Wavemarket Inc. d/b/a Location Labs v. Locationet Sys. Ltd.</i> , IPR2014-00199, Paper 56 at 6-7 (PTAB May 7, 2015)	15

STATUTES

35 U.S.C. § 103	8, 35, 41, 48, 52, 53, 54, 58
35 U.S.C. § 135(b)	4
35 U.S.C. § 314(a)	1

35 U.S.C. § 315(b)	3, 4, 5, 7
--------------------------	------------

REGULATIONS

77 Fed. Reg. 48,756	3
---------------------------	---

RULES

37 C.F.R. § 42.100(b)	8
-----------------------------	---

LIST OF EXHIBITS RELIED UPON HEREIN

Petitioner's Exhibits	
Exhibit	Description
Ex. 1001	U.S. Patent No. 8,375,957
Ex. 1002	Declaration of Jeffrey Schuster, Ph.D.
Ex. 1003	Canadian Patent Appl. No. 2,752,134 ("Hon '134")
Ex. 1004	U.S. Patent No. 6,234,167 ("Cox")
Ex. 1005	EP Patent Publ. No. 0845220 ("Susa")
Ex. 1006	U.S. Patent No. 5,060,671 ("Counts")
Ex. 1007	U.S. Patent No. 6,155,268 ("Takeuchi")
Ex. 1008	PCT Publ. No. WO00/28843
Ex. 1009	English translation of PCT Publ. No. WO00/28843 ("Pienemann")
Ex. 1010	CN 2719043
Ex. 1011	Certified English translation of CN 2719043 ("Hon '043")
Ex. 1012	U.S. Patent No. 2,057,353 ("Whittemore")
Ex. 1013	U.S. Patent Publ. No. 2003/0033055 ("McRae")
Patent Owner's Exhibits	
Exhibit	Description
Ex. 2001	IPR2015-00098 Paper 8 – Decision Denying Institution of <i>Inter Partes</i> Review, May 11, 2015
Ex. 2002	<i>Fontem Ventures B.V. et al. v. Logic Tech. Dev. LLC</i> , No. 14-cv-1654 (C.D. Cal.), Dkt. 1, Complaint, March 5, 2014

Ex. 2003	<i>Fontem Ventures B.V. et al. v. Logic Tech. Dev. LLC</i> , No. 14-cv-1654 (C.D. Cal.), Dkt. 20, Proof of Service of Complaint, March 12, 2014
Ex. 2004	<i>Fontem Ventures B.V. et al. v. Logic Tech. Dev. LLC</i> , No. 14-cv-1654 (C.D. Cal.), Dkt. 24, Logic's Answer to First Amended Complaint, May 2, 2014
Ex. 2005	Press Release – JT Acquires Logic, April 30, 2015, http://www.jti.com/media/news-releases/jt-acquires-logic-leading-independent-us-e-cigarette-company/ (last visited October 20, 2015)
Ex. 2006	Press Release – JT Completes Acquisition of Logic, July 28, 2015, http://www.jti.com/media/news-releases/jt-completes-acquisition-leading-us-e-cigarette-company-logic/ (last visited October 20, 2015)
Ex. 2007	IPR2015-01299 Paper 5 – Petitioners' Updated Mandatory Notices, August 17, 2015
Ex. 2008	IPR2015-01301 Paper 6 – Petitioners ' Updated Mandatory Notices, August 17, 2015
Ex. 2009	IPR2015-01302 Paper 5 – Petitioners ' Updated Mandatory Notices, August 17, 2015
Ex. 2010	IPR2015-01304 Paper 5 – Petitioners' Updated Mandatory Notices, August 17, 2015
Ex. 2011	<i>Fontem v. NJOY</i> , Case No.14-cv-1645 (C.D. Cal.), Dkt. 231, Application of George W. Jordan III to Appear Pro Hac Vice, September 4, 2015
Ex. 2012	<i>Fontem v. NJOY</i> , Case No.14-cv-1645 (C.D. Cal.), Dkt. 232, Application of Erik G. Swenson to Appear Pro Hac Vice, September 4, 2015
Ex. 2013	<i>Fontem v. NJOY</i> , Case No.14-cv-1645 (C.D. Cal.), Dkt. 251, Defendants' Motion to Exclude Expert Testimony, September 17, 2015

Ex. 2014	<i>Fontem v. NJOY</i> , Case No.14-cv-1645 (C.D. Cal.), Dkt. 257, Logic's Motion for Summary Judgment of Non-Infringement
Ex. 2015	<i>Fontem v. NJOY</i> , Case No.14-cv-1645 (C.D. Cal.), Dkt. 254, Motion for Summary Judgment of Invalidity, September 17, 2015
Ex. 2016	IPR2015-00098 Paper 2 - Petition for <i>Inter Partes</i> Review, October 21, 2014
Ex. 2017	Dictionary.com entry for electronic cigarette, http://dictionary.reference.com/browse/electronic+cigarette (last visited Feb. 18, 2015)
Ex. 2018	<i>Fontem v. NJOY</i> , Case No.14-cv-1645 (C.D. Cal.), Dkt 93 Exhibit A, Joint Claim Construction and Prehearing Statement, March 19, 2015
Ex. 2019	Merriam-Webster's Collegiate Dictionary (11th ed. 2003)
Ex. 2020	The American Heritage Dictionary (4th ed. 2000)
Ex. 2021	"List of References Cited by Applicant and Considered by Examiner" dated November 19, 2012 from file wrapper of U.S. Patent No. 8,375,957
Ex. 2022	"List of References Cited by Applicant and Considered by Examiner" dated December 20, 2012 from file wrapper of U.S. Patent No. 8,375,957
Ex. 2023	"List of References Cited by Applicant and Considered by Examiner" dated December 14, 2011 from file wrapper of U.S. Patent No. 8,375,957
Ex. 2024	<i>Fontem Ventures B.V. et al. v. Logic Tech. Dev. LLC</i> , No. 14-cv-1654 (C.D. Cal.), Dkt. 47, Proceedings: Claims Construction Hearing (Order re Disputes in Joint Scheduling) [Consolidation], January 22, 2015
Ex. 2025	IPR2015-00859 Paper 9 – Decision Denying Institution of <i>Inter Partes</i> Review, September 16, 2015

Ex. 2026	<i>Gen. Electric Co. v. Transdata, Inc.</i> , IPR2014-01380, Paper 34 (PTAB April 15, 2015)
Ex. 2027	<i>VMWare v. Good Tech. Software, Inc.</i> , IPR2015-00031, Paper 11 (PTAB Mar. 6, 2015)
Ex. 2028	<i>Wavemarket Inc. d/b/a Location Labs v. Locationet Sys. Ltd.</i> , IPR2014-00199, Paper 56 at 6-7 (PTAB May 7, 2015)

I. INTRODUCTION

JT International S.A. ("Petitioner") filed a Petition for *Inter Partes* Review of claims 1-18 and 21-24 of U.S. Patent No. 8,375,957 (Ex. 1001; "the '957 Patent")¹. Papers 1 and 6. Fontem Holdings 1 B.V. ("Patent Owner") requests that the petition be denied because Petitioner has failed to establish "that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition" under 35 U.S.C. § 314(a).

The Board previously denied a petition for *inter partes* review of the '957 Patent in IPR No. 2015-00098 ("the '098 IPR"), which was requested by Logic Technology Development, LLC ("Logic"), a wholly owned subsidiary of the Petitioner here. Ex. 2001. In the '098 IPR, Petitioner's subsidiary asserted that substantially the same claims of the '957 Patent were obvious over various combinations of six references, including Hon '043 and Whittemore cited by Petitioner here. In the '098 IPR, the Board declined to institute *inter partes* review of the '957 Patent in part because "Petitioner does not direct us to any disclosure in the prior art that would have led to the particular arrangement of elements specified in the claims, including a battery assembly housing having, on one end, an external

¹ The '957 Patent issued from U.S. Patent Appl. No. 12/226,819 ("the '819 Application"), filed January 15, 2009. A grandchild application of the '819 Application, U.S. Patent Appl. No. 13/915,427, issued as U.S. Patent No. 8,863,752 ("the '752 Patent"). The '752 Patent is currently involved in IPR Nos. 2015-01301 and 2015-01604.

screwthread electrode; and an atomizer assembly housing having, on one end, a mating internal screwthread electrode." *Id.* at 11. The Board also found that Petitioner's asserted combinations used "'impermissible hindsight,' based on the disclosure of the '957 patent, 'to decide which component goes where.'" *Id.*

Although the current petition cites several references that were not included in the '098 IPR, institution should be declined for at least the same reasons. The cited references fail to disclose, either alone or in combination, the claimed separate battery and atomizer assemblies connected via mated screwthread electrodes, let alone the specific arrangement of elements within the assemblies as recited in the '957 Patent claims. Moreover, Petitioner's assertions that one of ordinary skill in the art would rearrange the elements to arrive at the claimed invention are based entirely on impermissible hindsight rather than on what the references actually disclose. "The inventor's own path itself never leads to a conclusion of obviousness; that is hindsight. What matters is the path that the person of ordinary skill in the art would have followed, as evidenced by the pertinent prior art." *Otsuka Pharm. Co. v. Sandoz, Inc.*, 678 F.3d 1280, 1296 (Fed. Cir. 2012).

Because Petitioner fails to show that all elements of the '957 Patent claims are disclosed in the cited prior art, and because Petitioner provides no credible reason for combining the teachings of the cited prior art in the proposed manner, Petitioner has not established a reasonable likelihood that it would prevail with respect to any claim of the '957 Patent. As such, Petitioner's request for *inter partes* review should be denied.

II. PETITIONER IS ESTOPPED FROM INITIATING *INTER PARTES* REVIEW OF THE '957 PATENT UNDER 35 U.S.C. § 315(b)

A. Legal Standard

Under 35 U.S.C. § 315(b), *inter partes* review will not be instituted if the petition is filed by a party to an earlier infringement suit, or a real-party-in-interest or a privy of a party to an earlier infringement suit, and more than one year has passed between the date the complaint in the suit was served and the date the IPR petition was filed. The preclusive effect of § 315(b) applies to real-parties-in-interest for, and privies of, the parties to the earlier-filed litigation.

"Whether a party who is not a named participant in a given proceeding nonetheless constitutes a ... 'privy' to that proceeding is a highly fact-dependent question." 77 Fed. Reg. 48,756, 48,759 (Aug. 14, 2012) (citing generally *Taylor v. Sturgell*, 553 U.S. 880 (2008)). *Taylor* enumerates a number of reasons to apply non-party preclusion, including when: (1) there is an agreement to be bound; (2) there is a substantive legal relationship, such as between predecessor and successor or assignor and assignee; (3) there was adequate representation by a party with the same interests; and (4) a non-party "assumed control" over the litigation involving the party to be bound. *Taylor*, 553 U.S. at 893-95. The Board has found that "assuming control" does not require "absolute control;" rather, "the opportunity to exert the appropriate level of control is sufficient." *Gen. Electric Co. v. Transdata, Inc.*, IPR2014-01380, Paper 34 at 7-8 (PTAB April 15, 2015) (Ex. 2026) ("*Gen. Electric*"), citing 77 Fed. Reg. at 48,759 ("A common consideration is whether the non-party . . . could have exercised control . . ."). *See also Gonzalez v. Banco*

Cent. Corp., 27 F.3d 751, 758 (1st Cir. 1994) ("[C]ontrol means . . . the power—whether exercised or not—to call the shots.").

The Board does not limit the privity inquiry to the date the litigation was filed or the date of the involved IPR petition. Rather, privity may be based on events that occur after the start of the involved litigation. *Gen. Electric* at 7-8 et seq. (privity established on Dec. 30, 2011 after lawsuit filed Sept. 21, 2011 was sufficient to implicate 35 U.S.C. § 135(b)). (Ex. 2026). *See also, e.g., VMWare v. Good Tech. Software, Inc.*, IPR2015-00031, Paper 11 at 3-4 (PTAB Mar. 6, 2015) (Ex. 2027) ("*VMWare*") (§ 315(b) bar applied where petitioner became privy of litigant more than one year after the litigation was filed). In *VMWare*, the Board held that the plain language of § 315(b) did not preclude consideration of "events and activities" after the complaint was served in the action against AirWatch, including VMWare's acquisition of AirWatch after the one-year bar date of § 315(b). *Id.* Importantly, the Board found that VMWare's subsequent relationship of privity with AirWatch was sufficient to invoke the one-year bar of § 315(b). *Id.*

B. Relevant Timeline

On March 5, 2014, Fontem filed a complaint against Logic in the Central District of California ("CACD") for infringement of the '957 Patent and other Fontem patents. Ex. 2002; *Fontem Ventures B.V. et al. v. Logic Tech. Dev. LLC*, No. 14-cv-1654 (C.D. Cal.) (the "Logic Litigation"). The complaint was served on Logic on March 12, 2014. Ex. 2003. Logic's counsel at the outset of the Logic Litigation, de Gyrfas from Foley & Lardner, filed Logic's answer on May 2, 2014,

alleging, *inter alia*, invalidity, non-infringement, and unenforceability of the '957 Patent. Ex. 2004.

Under 35 U.S.C. § 315(b), the one-year bar for Logic or a real-party-in-interest or privy of Logic to file an IPR petition on the '957 Patent was triggered on March 12, 2015. On April 30, 2015, Petitioner announced an "agreement to acquire Logic...." Ex. 2005 ("JT[I] acquires Logic"). On June 26, 2015, Petitioner's attorneys Swenson and Jordan III from Norton Rose Fulbright US LLP ("NRF") filed the instant Petition. These same NRF attorneys filed two additional petitions against patents in the Logic Litigation, namely, U.S. Patent Nos. 8,365,742 and 8,689,805, on July 14 and 15, 2015, respectively. *See* IPR2015-01587 ('742 Patent) and IPR2015-01578 ('805 Patent).

On July 27, 2015, Petitioner finalized its acquisition of Logic. Ex. 2006. On August 17, 2015, Logic and its co-petitioners in four pending IPRs against Fontem patents filed "Petitioners' Updated Mandatory Notices," stating in part that as a result of being acquired "JT International S.A. is a real party-in-interest for Logic Technology Development LLC...." Ex. 2007-2010.

On September 4, 2015, Petitioner's NRF attorneys Swenson and Jordan III applied to appear *pro hac vice* in the Logic Litigation, stating that they were now also being retained to represent Logic.² Exs. 2011-2012. On September 17, 2015, Petitioner's attorneys Swenson and Jordan III filed motions in the Logic Litigation,

² The NRF attorneys filed their appearances in the Logic Litigation in Case No. CV14-1645-GW (MRWx) per the Court's order. Ex. 2024, p. 1.

including a motion to exclude evidence (Ex. 2013), and summary judgment motions for non-infringement (Ex. 2014) and invalidity (Ex. 2015). The cover page of Ex. 2014 and the signature blocks of Exs. 2013 M and 2015 show that Swenson and Jordan III are now lead counsel in the Logic Litigation.

C. Petitioner is in Privity with Logic in the Logic Litigation

The successor-in-interest relationship is a strong indicator of privity. *Taylor* at 894 ("Qualifying relationships include, but are not limited to, ... succeeding owners of property...."). As noted above, Logic informed the USPTO on August 17, 2015 that, because of the acquisition, Petitioner had supplanted Logic as the real-party-in-interest in Logic's four IPRs against Fontem's patents. Ex. 2007-2010.

After Petitioner agreed to acquire Logic, Petitioner's NRF attorneys Swenson and Jordan III (i) filed the instant Petition and two others directed to Fontem's patents in the Logic Litigation, and (ii) supplanted Logic's other attorney, de Gyrfas, as lead counsel in the Logic Litigation. Swenson and Jordan III filed their IPR petitions as attorneys for Petitioner, and their pleadings in the Logic Litigation as attorneys for Logic. As lawyers for Petitioner, they are ethically obligated to represent the interests of Petitioner. Petitioner thus not only has the "opportunity to exert the appropriate level of control in the [Logic Litigation]," but is de facto playing a substantial role in the Logic Litigation by virtue of having its own attorneys leading the defense. At a minimum, Petitioner "has the actual measure of control or opportunity to control that might reasonably be expected between two formal coparties." *See Gen. Electric*, Paper 34 at 7-8. (Ex. 2026).

The facts of the present proceeding closely parallel *VMWare*. In both cases, (i) the party in litigation was acquired after the § 315(b) one-year bar expired, (ii) the IPR petition in issue was filed by the acquiring parent corporation after the § 315(b) one-year bar expired, and (iii) privity arose between the parent entity and its wholly owned subsidiary after the lawsuit was filed. The result here should be no different than that in *VMWare*. Since Petitioner filed the instant petition more than one year after its privy Logic was served with a complaint alleging infringement of the '957 Patent, Petitioner is barred under § 315(b).

III. THE '957 PATENT

In one embodiment, the '957 Patent discloses an electronic cigarette (or cigar) comprising separate battery and atomizer assemblies. The atomizer assembly comprises an atomizer assembly housing containing a solution storage area and an atomizer that includes a heater coil wound around a porous component. The battery assembly comprises a battery assembly housing containing a battery connected to a circuit board and a sensor. The battery and atomizer assemblies are connected via mating screwthread electrodes located at one end of the respective housings. These corresponding screwthread electrodes provide a secure mechanical and electrical connection between the two assemblies and allow for easy disassembly/interchangeability.

Figs. 2A and 3 of the '957 Patent, below (annotations added), illustrate embodiments of the battery and atomizer assemblies, respectively.

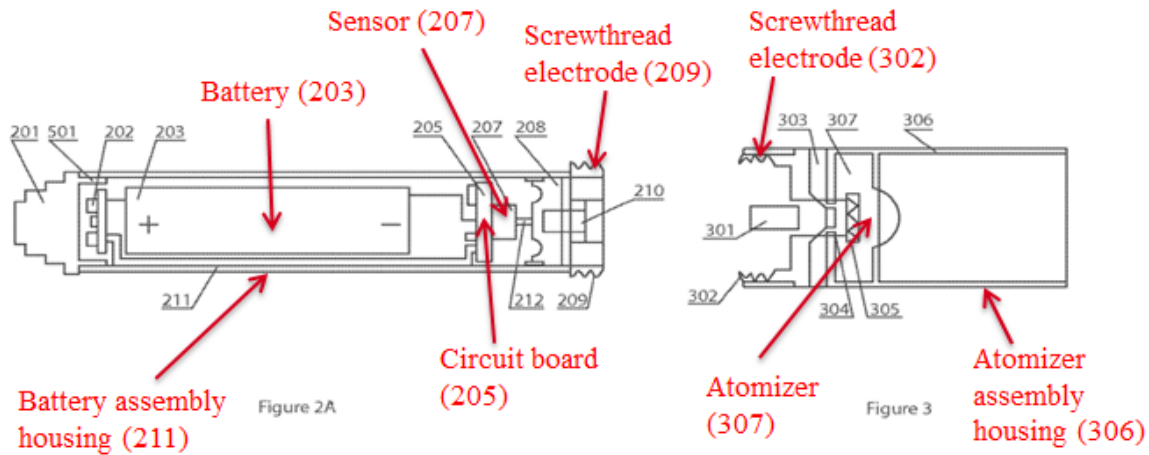
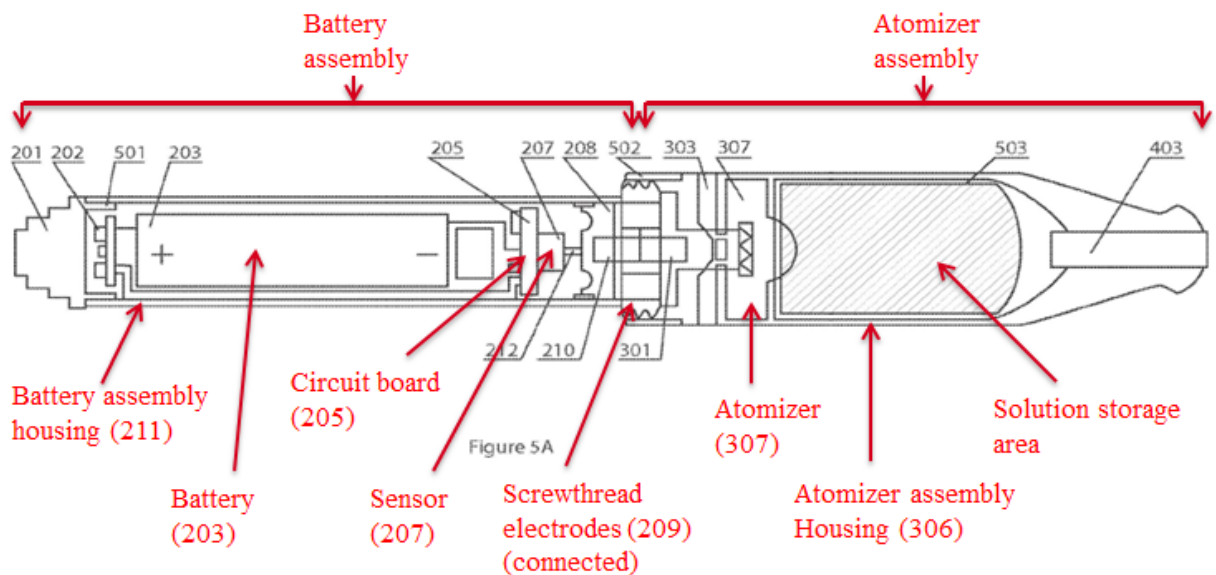


Fig. 5A of the '957 Patent, below (annotations added), illustrates how the atomizer and battery assemblies connect via the screwthread electrode to form the complete electronic cigarette.



IV. CLAIM CONSTRUCTION

In an *inter partes* review proceeding, "[a] claim in an unexpired patent shall be given its broadest reasonable construction in light of the specification of the patent in which it appears." 37 C.F.R. § 42.100(b). Under that standard, primacy

is given "to the language of the claims, followed by the specification.

Additionally, the prosecution history, while not literally within the patent document, serves as intrinsic evidence for purposes of claim construction." *Tempo Lighting v. Tivoli*, 742 F.3d 973, 977 (Fed. Cir. 2014).

Claims are construed from the perspective of one of ordinary skill in the art at the time of the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en banc). One of ordinary skill in the art of the '957 Patent has a mechanical or electrical engineering degree, industrial design degree, or a similar technical degree or equivalent work experience, and 5–10 years of working in the area of electromechanical devices, including medical devices. Petitioner asserts that one of ordinary skill in the art has "a four-year degree in Mechanical Engineering, Electrical Engineering, Physics, or equivalent, as well as four years of experience in designing pulmonary drug delivery devices." Petition at 5. Thus, the dispute between the parties is over the amount of required work experience and whether pulmonary drug delivery device experience is necessary. In the '098 IPR, Petitioner's predecessor-in-interest Logic asserted that "the level of ordinary skill in the art of the '957 patent is at least a Bachelor's degree in electrical engineering, mechanical engineering or biomedical engineering, along with at least five years' experience designing electromechanical medical devices." Ex. 2016 at 16. No pulmonary drug delivery device experience was required.

A. "electronic cigarette or cigar" and "electronic cigarette"

Patent Owner's Construction	Petitioner's Construction
an electronic device that simulates the	electronically controlled device for

feel and experience of a cigarette or cigar without burning	inhalation by a user of vaporized or aerosolized material as a substitute for cigarette smoking (Petition at 5-6)
---	---

The broadest reasonable construction of "electronic cigarette or cigar" and "electronic cigarette" is "an electronic device that simulates the feel and experience of a cigarette or cigar without burning." Unlike Petitioner's proposed construction, the present construction requires that the electronic cigarette or cigar simulate the feel and experience of a cigarette or cigar, as opposed to merely serving as a nicotine delivery device, *e.g.*, a nebulizer.

The disclosure of the '957 Patent supports Patent Owner's proposed construction. The '957 Patent states that the disclosed devices provide a substitute for real cigarettes: "[t]he purpose of this invention is to provide an electronic cigarette that substitutes for real cigarettes..." Ex. 1001, 1:42–43. The '957 Patent also criticizes prior art cigarette substitutes like the "Cigarette Patch" and "Nicotine Chewing Gum" as not satisfying the smoker's habit of "repetitively inhaling and exhaling." Ex. 1001, 1:28–38.

Contemporary dictionaries define "electronic cigarette" in a manner that supports Patent Owner's proposed construction. For example, Dictionary.com defines "e-cigarette" as "a device used to simulate the experience of smoking, having a cartridge with a heater that vaporizes liquid nicotine instead of burning tobacco." Ex. 2017.

In view of the disclosure of the '957 Patent and the ordinary meaning of the terms, the broadest reasonable construction of "electronic cigarette or cigar" and

"electronic cigarette" is "an electronic device that simulates the feel and experience of a cigarette or cigar without burning."

B. "atomizer"

Patent Owner's Construction	Petitioner's Construction
component that converts liquid into aerosol or vapor	device to convert a substance into an aerosol or vapor (Petition at 7-8)

To the extent "atomizer" needs a construction, it should be construed to mean "component that converts liquid into aerosol or vapor." This is identical to the construction agreed upon by Patent Owner and Petitioner's subsidiary Logic in corresponding litigation involving the '957 Patent. Ex. 2018 at 8.

Petitioner's characterization of an atomizer as a "device" rather than a "component" is unreasonably broad because it encompasses an entire electronic cigarette or cigar rather than just those components of the device that are directly involved in atomization.

Patent Owner's construction is supported by the '957 Patent specification, which states that "[t]he air-liquid mixture sprays onto the heating body (305) [inside the atomizer (307), see Ex. 1001 at 4:5-6], gets vaporized, and is quickly absorbed into the airflow and condensed into aerosol, which passes through the air intake hole (503) and suction nozzle (403) to form white mist type aerosol." Ex. 1001, 4:13-17.

The extrinsic evidence also supports Patent Owner's proposed construction. Webster's defines "atomize" as "2: to reduce to minute particles or to a fine spray,"

and defines "atomizer" as "an instrument for atomizing usu. a perfume, disinfectant, or medicament." Ex. 2019 at 78.

In view of the disclosure of the '957 Patent, the definition agreed to by Patent Owner and Petitioner's subsidiary in litigation involving the '957 Patent, and the ordinary meaning of the term, the broadest reasonable construction of "atomizer" is "a component that converts liquid into aerosol or vapor."

C. "screwthread electrode"

Patent Owner's Construction	Petitioner's Construction
projecting helical rib of a screw formed from a conductor for passing electricity that mates with a corresponding groove between projecting helical ribs of a screw formed from a conductor for passing electricity	helical ridge formed on a fastening body that has an electrical conductor for passing electric current (Petition at 7)

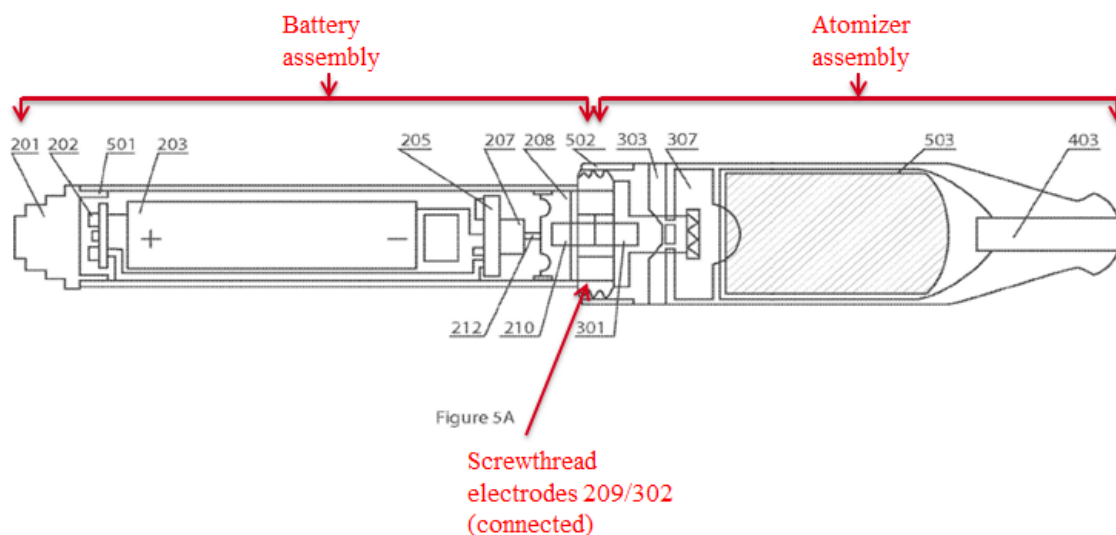
To the extent "screwthread electrode" needs a construction, it should be construed to mean "projecting helical rib of a screw formed from a conductor for passing electricity that mates with a corresponding groove between projecting helical ribs of a screw formed from a conductor for passing electricity."

Petitioner's proposed construction is unreasonably broad because it refers to a "fastening body" generally rather than a "screw." All of the '957 Patent claims require connection of the atomizer and battery assembly housings via mated screwthread electrodes. Ex. 2001 at 7. A "fastening body" is not necessarily capable of connecting the assemblies in this specific manner. Petitioner's construction is also improper in that it merely requires the helical ridge to *have* an

electrical conductor, rather than requiring that the ridge itself be formed *from* a conductor.

Patent Owner's construction is supported by the '957 Patent claims, which require "a separate battery assembly housing that connects to an atomizer assembly housing by mated screwthread electrodes." *Id.* The screwthread electrodes serve to physically and electrically connect the battery assembly housing, which includes a source of electricity, to the atomizer housing, which includes an atomizer that must be powered by electricity.

Patent Owner's construction is also supported by the '957 Patent specification. As shown in Fig. 5A, below (annotations added), the '957 Patent discloses that "[a]n external thread electrode (209) is located in one end of the battery assembly, and an internal thread electrode (302) is located in one end of the atomizer assembly. The battery assembly and atomizer assembly are connected through the screwthread electrode into an emulation cigarette." Ex. 1001, 2:63–3:1.



Patent Owner's construction is likewise supported by the Board's decision to deny institution of the '098 IPR: "Our analysis centers on whether Petitioner shows sufficiently that it would have been obvious, at the time of the invention, to provide an apparatus, having a separate battery assembly housing that connect to an atomizer assembly housing by mated screwthread electrodes, as require by each of the independent challenged claims." Ex. 2001 at 7.

The extrinsic evidence also supports Patent Owner's proposed construction. Webster's defines "screwthread" as "the projecting helical rib of a screw," and defines "electrode" as "1: a conductor used to establish electrical contact with a nonmetallic part of a circuit 2: an element in a semiconductor device (as a transistor) that emits or collects electrons or holes or controls their movements." Ex. 2019 at 401, 1116. Similarly, The American Heritage Dictionary defines "electrode" as "a solid electrical conductor through which an electric current enters or leaves an electrolytic cell or other medium." Ex. 2020 at 575.

In view of the claims and the disclosure of the '957 Patent and the ordinary meaning of the terms "screwthread" and "electrode," the broadest reasonable construction of "screwthread electrode" is "projecting helical rib of a screw formed from a conductor for passing electricity that mates with a corresponding groove between projecting helical ribs of a screw formed from a conductor for passing electricity."

D. "solution storage area"

Patent Owner's Construction	Petitioner's Construction
no construction necessary, or in the	area for storing a uniformly distributed

alternative, area for storing a reserve of liquid	mixture of two or more substances (Petition at 8)
---	---

Independent claims 1, 10, and 23 all recite a "solution storage area." Claims 1 and 23 recite that the "solution storage area" is "in the atomizer assembly housing," while claim 10 recites that the "solution storage area" is in "a solution assembly" within the "atomizer assembly." Patent Owner asserts that the term "solution storage area" needs no construction; it is simply the area for storing a reserve of liquid in the claimed electronic cigarette. This "solution storage area" does not encompass components through which liquid only temporarily passes, *e.g.*, the metering cavity. Instead, it is limited to components that hold a reserve of liquid.

In support of its proposed construction, Petitioner relies on dictionary entries that define "solution" as a mixture of liquid, solid, or gas. Petition at 7, citing Exs. 1025 and 1026. However, extrinsic evidence is unlikely to result in a reliable interpretation of patent claim scope unless considered in the context of the intrinsic evidence. *Wavemarket Inc. d/b/a Location Labs v. Locationet Sys. Ltd.*, IPR2014-00199, Paper 56 at 6-7 (PTAB May 7, 2015) (Ex. 2028). Here, the context of the '957 Patent specification makes it clear that "solution" as used therein refers specifically to a liquid solution, not a solid or gas solution. For example, the '957 Patent refers repeatedly to a "cigarette bottle assembly" containing a "cigarette liquid." Ex. 1001, 1:66-2:11; 3:48-53; 4:6-9; 4:46-49; 5:20-22. Further, in every disclosed embodiment liquid is supplied to the atomizer for aerosolization. Ex. 1001, 4:16-17; 5:23-31.

E. "porous component"

Patent Owner's Construction	Petitioner's Construction
a material that is full of interconnected pores into which liquid or gas is absorbed or diffused	part through which matter can pass or be absorbed (Petition at 8-9)

Independent claims 1, 10, and 23 all recite an atomizer having including a heater coil and a "porous component." The broadest reasonable interpretation of "porous component" is "a material that is full of interconnected pores into which liquid or gas is absorbed or diffused."

Patent Owner's construction is supported by the specification of the '957 Patent, which recites that "[t]he atomizer (307) may be a capillary impregnation atomizer as FIGS. 8 and 9 show, or a spray atomizer as FIGS. 10 and 11 show." Ex. 1001, 3:45-47. The '957 Patent further discloses that "[t]he fiber (402) inside the cigarette liquid bottle (401) contains cigarette liquid, which soaks the micro-porous ceramics (801) inside the atomizer through the fiber (402)." Ex. 1001, 4:6-9. The '957 Patent explains that "[b]esides the micro-porous ceramics, the liquid supply material of the atomizer (307) may also be foamed ceramics, microporous glass, foamed metal, stainless steel fiber felt, terylene fiber, nylon fiber, nitrile fiber, aramid fiber or hard porous plastics." Ex. 1001, 4:25-29. Those examples all support Patent Owner's proposed construction of "a material that is full of interconnected pores into which liquid or gas is absorbed or diffused." The porous component that the heating coil is "wound around" must be able to soak up the liquid, not simply have holes so that the liquid can pass.

Petitioner's proposed construction is unreasonably broad because it would extend to, for example, a material that is not porous but which merely has holes in it through which liquid can pass. For example, under Petitioner's proposed construction, a metal sheet would be considered a porous component if holes were drilled into it such that liquid could pass through. However, such a metal sheet could not perform the function of the "porous component" recited in the '957 Patent claims because it could not soak up liquid as disclosed in the '957 Patent. There would be no reason to include "a heater coil wound around" a metal sheet with holes in the electronic cigarette of the '957 Patent because that metal sheet would not perform the function of the porous component.

The broadest reasonable construction of "porous component" in view of the '957 Patent specification is "a material that is full of interconnected pores into which liquid or gas is absorbed or diffused."

V. THE PETITION FAILS TO SHOW A REASONABLE LIKELIHOOD THAT ANY CLAIM OF THE '957 PATENT IS UNPATENTABLE

Petitioner proposes 16 separate grounds for unpatentability for the claims of the '957 Patent. Petition at 2-4 (Paper 6). As addressed in detail below, Petitioner fails to show a reasonable likelihood of prevailing on any of these grounds, in part because the cited references in each ground, alone or in combination, do not disclose certain elements of the challenged claims, nor do they teach or suggest the specific arrangement of elements recited in the claims, namely a battery assembly and atomizer assembly containing the various components recited in the claims and connected via mating screwthread electrodes located on the ends of their respective

housings. Because Petitioner fails to show a reasonable likelihood that any of the claims of the '957 Patent are unpatentable, the Board should deny *inter partes* review for any claim.

A. Ground 1: Claims 1, 3, 5-9, and 23 are Not Obvious over Hon '134 in View of Takeuchi

Petitioner requests that claims 1, 3, 5-9, and 23 be cancelled as unpatentable under 35 U.S.C. § 103 over CA Patent Appl. No. 2,752,134 (Ex. 1003; "Hon '134") in view of Takeuchi. Petition at 2, 11-19 (Paper 6). Petitioner additionally cites U.S. Patent No. 3,934,117 (Ex. 1036; "Schladitz"), U.S. Patent No. 6,234,167 (Ex. 1004; "Cox"), and U.S. Patent No. 5,060,671 (Ex. 1006; "Counts") as providing motivation for the asserted combination. Petition at 12-13.

1. Hon '134

Hon '134 claims priority to China Patent Appl. No. 03111582.9. Ex. 1003, Title Page. This Chinese application, which has substantially the same disclosure as Hon '134, and an English machine translation thereof were cited in Information Disclosure Statements filed during prosecution of the '957 Patent, and both were considered by the Examiner. Ex. 2021, "Foreign Patent Documents," Cite No. 1; Ex. 2022, "Non-Patent Literature Documents," Cite No. 3.

Hon '134 discloses an electronic cigarette in which nicotine solution stored in a liquid storage container (labeled 13, 113, 213, and 313 in Figs. 1 (below, annotated), 7, 8, and 9 (below, annotated), respectively) is transferred to a vaporization nozzle (labeled 17, 117, 217, and 317 in Figs. 1, 7, 8, and 9, respectively), where it is vaporized and ejected. Nicotine solution is moved from

the storage container via a series of pumps or valves, and in certain embodiments briefly passes through a metering cavity (see Fig. 9). In certain embodiments, various components are mechanically connected via threads (see threads 7 in Fig. 1 and seal threaded-opening 323 in Fig. 9).

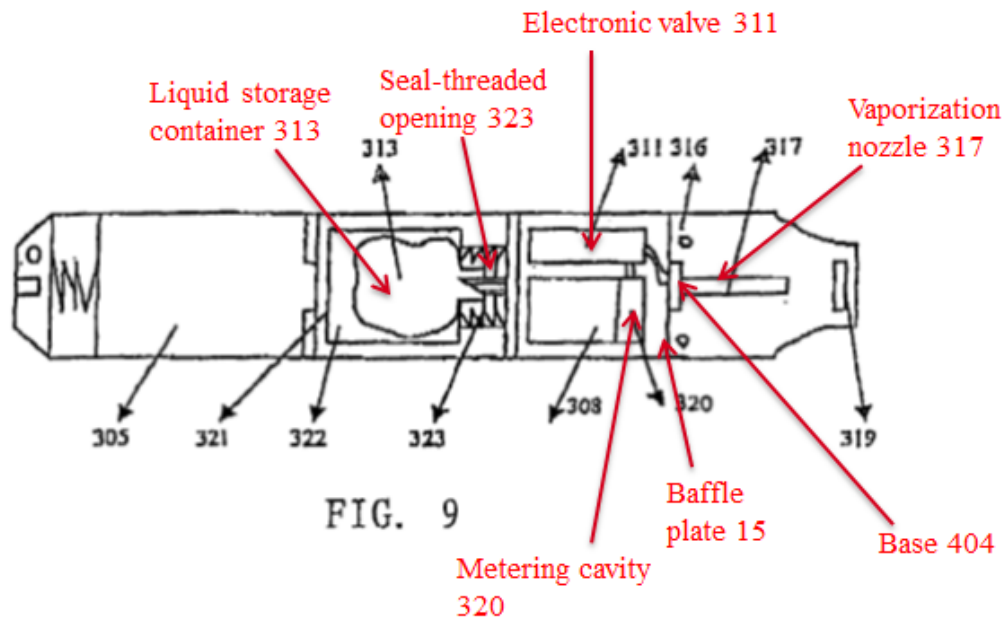
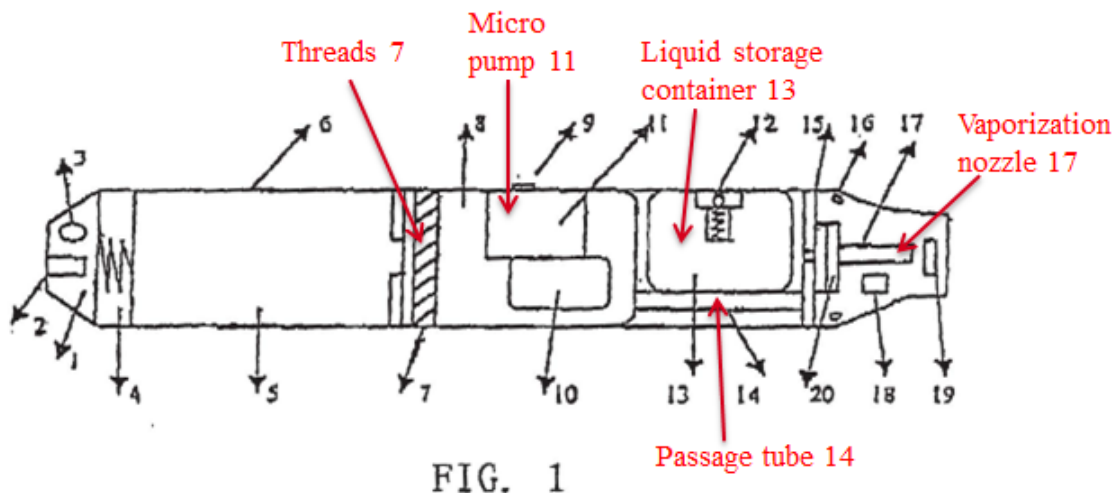


Fig. 3 of Hon '134, below, shows a schematic diagram of "the high temperature vaporization nozzle and the electric-thermal element." Threads 403 on

base 404 serve to mechanically attach nozzle 405 to baffle plate 15 (see annotations in Fig. 9, above). Heating wire 402 within nozzle 405 is electrically connected to battery 5 via two electrode lead wires 401.

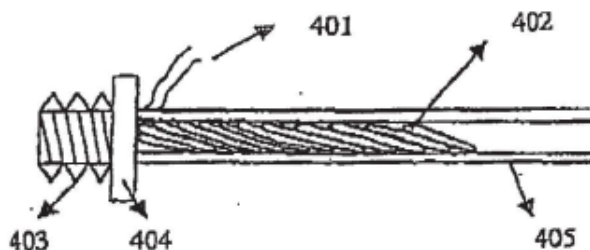


FIG. 3

2. Takeuchi

Takeuchi claims priority to JP Patent Appl. No. 9-197033. Ex. 1007, Title Page. EP Patent Publ. No. 0893071, which claims priority to the same Japanese application and has substantially the same disclosure as Takeuchi, was cited in an Information Disclosure Statement filed during prosecution of the '957 Patent, and was considered by the Examiner. Ex. 2023, "Foreign Patent Documents," Cite No. B22.

Takeuchi discloses a "flavor generating device" in which liquid containing a flavor source is transported through a liquid passageway via capillary force to a heater site, where it is gasified and made available for inhalation by a user through an inhalation port. This is illustrated in Figs. 1 and 8 of Takeuchi, below (annotated). A liquid flavor source is transported from liquid container 32 by capillary force through liquid passageway 37/371 within capillary tube 36. Ex.

1007, 5:47-52. The liquid contacts heater 42 in outlet port 36b to gasify the liquid, and upper chamber 121 receives the atomized liquid. Ex. 1007, 6:4-12. In certain embodiments, the heater of Takeuchi is "a tubular body mounted to the capillary tube 36 and having an inner diameter equal to that of the capillary tube 36," i.e., outlet port 36b may be formed by heater 42 itself. Ex. 1007, 6:7-12. In other embodiments, the heater may be ring-shaped, rod-like, or plate-like. Ex. 1007, 8:19-26. However, Takeuchi does not disclose the use of a heater comprising a coil.

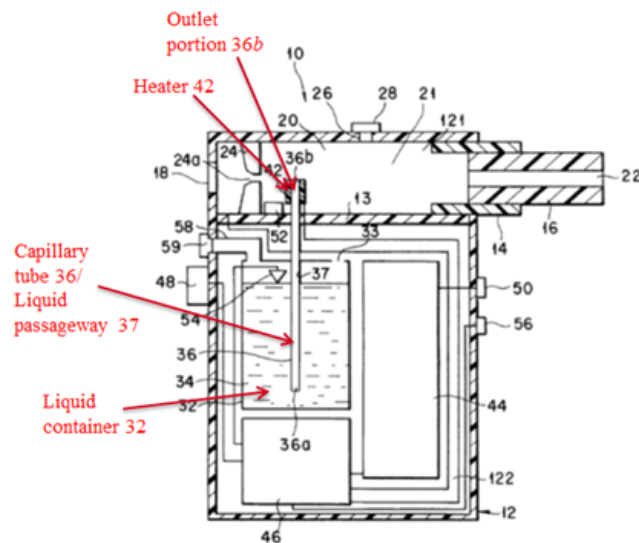


FIG. 1

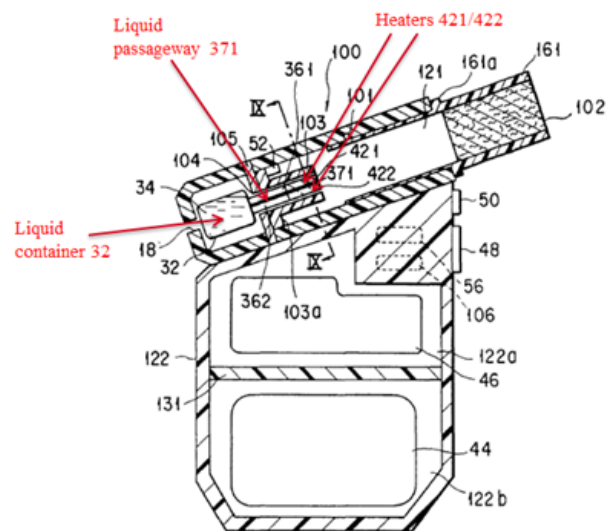


FIG. 8

3. Independent Claims 1 and 23 of the '957 Patent are Not Obvious over Hon '134 and Takeuchi

Claims 1 and 23 require "a separate battery assembly housing that connects to an atomizer assembly housing by mated screwthread electrodes." Ex. 2001 at 7. Because Petitioner fails to point to any disclosure in Hon '134 or Takeuchi that would have led to separate battery and atomizer assemblies connected by mated

screwthread electrodes, much less to the specific recited arrangement of components within those assemblies (i.e., the atomizer and solution storage area in the atomizer assembly and the battery, micro-controller unit (MCU), and sensor in the battery assembly), the Petition fails. *Id.* at 11. Rather than relying on the disclosure in the cited art, Petitioner relies on "'impermissible hindsight,' based on the disclosure of the '957 patent, 'to decide which component goes where.'" *Id.* Such hindsight cannot form the basis for obviousness. *Otsuka*, 678 F.3d at 1296.

a. Hon '134 Does Not Disclose a "Screwthread Electrode" as Required by Claims 1 and 23

Petitioner acknowledges that "Hon '134 does not expressly disclose an external screwthread electrode on the battery assembly." Petition at 13, emphasis in original. While true, this is only part of the story – Hon '134 does not disclose a screwthread electrode *at all*.

Petitioner asserts that "seal threaded-opening 323" in Fig. 9 of Hon '134 constitutes a primary screwthread electrode, and that "mating pair to threaded-opening 323" constitutes a secondary screwthread electrode. Petition at 14-16. Petitioner also cites, without comment, threads 7 of Fig. 1, threads 403 of Fig. 3, and several sections of the Hon '134 specification (2:12-19, 2:28-33, 3:31-4:1, 8:24-25, 9:20-10:6) that list components of the disclosed device. *Id.* Petitioner provides no explanation or argument as to how any of these cited sections relate to the alleged screwthread electrode disclosure.

Petitioner's expert Jeffrey Schuster, Ph.D. ("Schuster") asserts that "Hon '134 provides a battery 305 on the opposite side of threaded opening 323 from the

electrically heated vaporization nozzle 317," and "because Hon '134 lacks any teaching of a wire or electrical connection for current to flow, threaded opening 323 must necessarily be a screwthread electrode." Ex. 1002, ¶123. Schuster repeats this assertion verbatim two more times in his declaration without further explanation. Ex. 1002, ¶125, 133.

Hon '134 does not mention screwthread electrodes or threaded electrical connections, and there is nothing in Hon '134 to suggest that the various threads cited by Petitioner were meant to be capable of conducting electricity rather than simply serving to physically connect various device components. Hon '134 has the same inventor (Lik Hon) as the '957 Patent; had Mr. Hon intended to utilize screwthread electrodes in conjunction with the Hon '134 device, he would have disclosed them.

Seal threaded-opening 323 and threads 7 in Figs. 9 and 1 of Hon '134 (above at (V)(A)(1)) are presented as physically connecting device components. Example 4 of Hon '134 entitled "the electronic spray cigarette utilizing the pressure of a container" states:

A gas vessel filled with high-pressure nitrogen is arranged around the periphery of the liquid storage container to exert pressure thereon to facilitate the transmission of the liquid. When a control signal is applied to the electronic valve, the electronic valve is activated, and the solution enters the metering cavity from the liquid storage under pressure....The...pressure chamber 322, seal-threaded opening 323...are showed in Fig. 9. Ex. 1003, 9:18-10:6.

The screw threads of seal-threaded opening 323 are located on one end of the pressure chamber 322 to provide a secure mechanical connection between the pressure chamber and the device. Like other pressured gas fittings, seal-threaded opening 323 has a flow control valve. Pressured gas fittings are used to create mechanical, not electrical, connections, and Petitioner offers no explanation as to why this should not be the case with seal-threaded opening 323.

Threads 403 of Hon '134 Fig. 3 (above at (V)(A)(1)) are wholly located within the portion of the device identified as the atomizer assembly housing by Petitioner, and like seal threaded-opening 323 and threads 7 play a purely mechanical role, serving to connect the base of vaporization nozzle 317/17 to baffle plate 15 (see annotated Fig. 9 above at (V)(A)(1)). The depiction of two lead wires 401 in Fig. 3 plainly illustrates that thread 403 was not envisioned by Hon '134 as part of a screw thread electrode. If electricity were being conducted through the screwthread, there would be no need for these two lead wires.

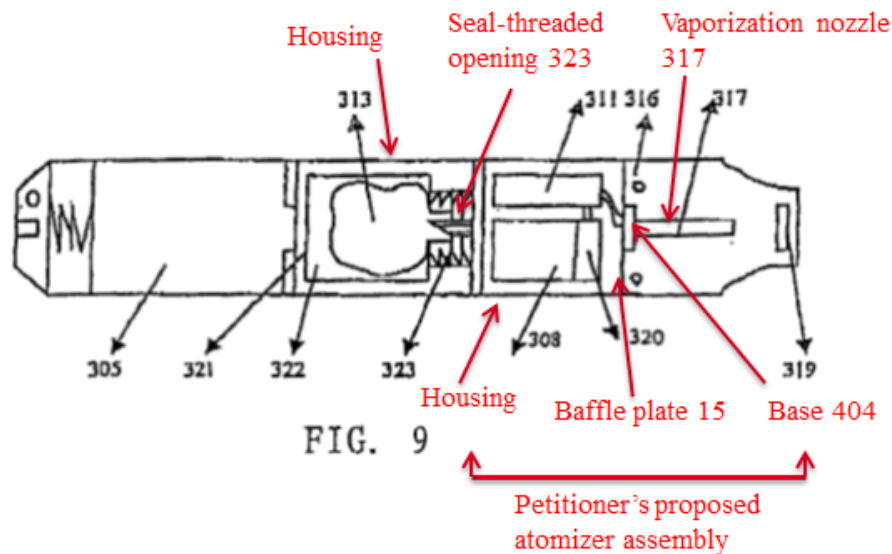
The device of Hon '134 contains multiple components (*e.g.*, vaporization nozzle, pumps, valves, sensors, etc.) that require different electrical connections, and Hon '134 discloses all of these electrical connections being made by wires. Petitioner does not explain how one would go about the complex process of replacing all of these wires using a single screw thread electrode to make all the required electrical connections. Doing so would not have been a routine matter, and would have increased both the complexity and cost of the Hon '134 device. Indeed, many of the connections in the Hon '134 device could not be replaced by a screwthread electrode connecting two housing assemblies because such

connections require not only receiving power from the battery side of the device but also sending a signal back to the controller circuit on the battery side of the device. The sending of both power and multiple control signals could not be accomplished through a single screw thread electrode. As such, one skilled in the art would not have modified Hon '134 to include a screw thread electrode. Such a modification would offer no advantage as wires would still be needed for various portions of the device to communicate with the control circuit board. For example, Hon '134 discloses airflow sensor 18 and/or resistance sensor 19 connected to control circuit board 8. Hon '134, Fig. 1. Hon '134 discloses that these sensors send signals to control circuit board 8. Ex. 1003, 4:27-34; 6:13-18; 6:30-7:1. Even assuming that the screwthread of seal-threaded opening 323 or nozzle 17 is on the end of a housing—it is not—there would be no advantage to modifying those screwthreads to conduct electricity because additional connections would be necessary to convey the signals for the sensors to the control circuit board. The use of both a screwthread electrode and wires connecting two assembly housings would be difficult to implement and would defeat the purpose of using a screwthread electrode to connect the housings. There is simply no reason to modify Hon '134 to include screwthread electrodes.

b. Hon '134 Does Not Disclose a Screwthread, Much Less a Screwthread Electrode, on an Atomizer Assembly Housing or a Battery Assembly Housing

Petitioner asserts that "seal threaded-opening 323" in Fig. 9 of Hon '134 constitutes a primary screwthread electrode, and that "mating pair to threaded-

opening 323" constitutes a secondary screwthread electrode. Petition at 14-16. As shown in Fig. 9 of Hon '134, below (annotated), in addition to not being a screwthread electrode, seal threaded-opening 323 of Hon '134 is not located on an atomizer assembly housing or battery assembly housing as required by claims 1 and 23.



Contradicting its earlier statement that Hon '134 discloses each limitation of claims 1 and 23 "except its sensor location and a porous component," Petitioner acknowledges that "Hon '134 does not expressly disclose an external screwthread electrode on the battery assembly." Petition at 13, emphasis in original. Petitioner attempts to overcome this shortcoming by arguing that one of ordinary skill in the art would "have reason to provide the external screwthread electrode on the battery assembly of Hon '134 so that the battery assembly could fit the charging interface having an internal screwthread, thereby avoiding shorting and safety issues that could result from the charging interface having an external screw thread instead."

Petition at 13-14. However, Petitioner offers no objective support for this conclusory assertion, instead relying wholly on impermissible hindsight based on the disclosure of the '957 Patent, which discloses that "[t]he placement of the external screwthread electrode on the battery assembly housing permits that electrode to function as a charging interface for the battery." Ex. 2001 at 9 (citing '957 Patent at 4:58-61). As in the '098 IPR, Petitioner "does not establish a reason with a rational underpinning" for the proposed modification. *Id.* at 10-11.

Petitioner confuses its arguments regarding the location of the alleged screwthread electrode by citing to thread 403 in Fig. 3. First, like seal threaded-opening 323 in Fig. 9, thread 403 is entirely internal to the device, i.e., not on the housing. Second, Petitioner identifies the atomizer assembly housing of the device in Hon '134 as extending from threaded opening 323 to the right end of the device in Fig. 9. Petition at 15. As discussed above, thread 403 serves to physically secure vaporization nozzle 17/317 to baffle plate 15. As shown in annotated Fig. 9 of Hon '134 above, this places thread 403 directly in the middle of the alleged atomizer assembly. Thus, even under Petitioner's own asserted interpretation of the Hon '134 device, thread 403 cannot be on the end of a housing.

c. Hon '134 Does Not Disclose an Atomizer Assembly Housing Containing a Solution Storage Area

Claims 1 and 23 require that the atomizer assembly housing contain a solution storage area. Petitioner asserts that the atomizer assembly housing in Hon '134 is right of threaded opening 323 in Fig. 9 of Hon '134, above, while the battery assembly housing is left of threaded opening 323. Petition at 14-15.

Liquid storage container 313 in Fig. 9 of Hon '134 is located to the left of threaded opening 323, i.e., in the asserted battery assembly housing. Petitioner attempts to overcome this issue by asserting that metering cavity 320 of the Hon '134 device, not liquid storage container 313, is the solution storage area. Petition at 15.

Petitioner offers no substantive explanation for this assertion, and neither does Schuster, who merely states "[a]t least metering cavity 320 of Hon '134 discloses the elements of claim 1[g]" without further explanation of analysis. Ex. 1002, ¶131.

The specification of Hon '134 repeatedly refers to the liquid storage container as containing the nicotine solution. *See, e.g.*, Ex. 1003, 2:12-21; 3:7-10; claim 1. The metering cavity identified by Petitioner as the solution storage area, on the other hand, does not actually store solution; solution simply passes through the metering cavity during operation. Nicotine solution stored in the liquid storage container enters the metering cavity via an electronic valve only when a control signal is applied, and remains in the metering cavity for only a few seconds on its way to the vaporization nozzle to deliver a metered dose. Ex. 1003, 2:28-30.

d. Petitioner Fails to Show that Hon '134 Discloses an Atomizer Including a Porous Component

Petitioner initially acknowledges that Hon '134 does not disclose the "porous component" element of claims 1 and 23. Petition at 12. However, Petitioner later reverses course and asserts that Hon '134 "discloses an atomizer including a heating coil (heating wire 402) would around a porous component (vaporization nozzle 317). Petition at 16. Petitioner cites numerous sections of Hon '134 (5:18-

6:4, 8:24-25, 9:21-25, 10:2-5, 10:50-67, Figs. 3 and 9), but does not explain which of these sections allegedly disclose a porous component. Likewise, Petitioner identifies vaporization nozzle 317 in its annotated version of Fig. 9 of Hon '134 as a "porous component" without any explanation or support. Petition at 16.

Schuster also fails to provide any explanation or analysis for his conclusory statements, simply stating "[a]t a minimum, components in Hon '134 such as heating wire 402, and vaporization nozzle 317 disclose the elements of claim 1[j]." Ex. 1002, ¶140. The cited sections of Hon '134 do not support Petitioner's assertion that the reference discloses an atomizer including a porous component, and said assertion expressly contradicts Petitioner's own earlier statement.

Petitioner asserts that Schladitz shows "it was well-known to wind a heater coil around a porous component." Petition at 13. However, Petitioner offers no arguments in support of this conclusory statement, instead merely citing a few lines from Schladitz without explanation or context. *Id.* Petitioner makes no attempt to explain why one of ordinary skill in the art would have looked to Schladitz for guidance when combining Hon '134 and Takeuchi. Tellingly, Schuster does not echo Petitioner's assertion regarding Schladitz. *See* Ex. 1002, ¶¶139-142.

e. The Intercommunicating Pore Structure of Takeuchi is Not Part of the Atomizer

Petitioner asserts that Takeuchi discloses the "porous component" of the atomizer recited in claims 1 and 23. Petition at 12. The portion of Takeuchi cited by Petitioner (Ex. 1007 at 3:31-50) relates to "the liquid passageway through which the liquid flavor source is transported by the capillary force," and states that

said passageway can be constituted by "an intercommunicating pore structure" "through which the liquid may be elevated from the inlet of the passageway which is in fluid communication with the liquid flavor source contained in the liquid container to the outlet of the passageway by the capillary force." Ex. 1007, 3:35-46. Thus, the intercommunicating pore structure of Takeuchi is part of capillary tube 36/liquid passageway 37; Takeuchi does not envision the pore structure extending into outlet port 36*b*.

Petitioner asserts that the atomizer of Takeuchi includes "capillary tube 36, liquid passageway 37/371, heaters 421, 422/heater 42, cooling chamber 21." Petition at 15. However, this assertion relies on an overly broad interpretation of "atomizer" that contradicts both Patent Owner's proposed construction ("a component that converts liquid into aerosol or vapor ") and Petitioner's own proposed construction ("device to convert a substance into an aerosol or vapor").

The atomizer in Takeuchi's device is comprised exclusively of heater 42 (also referenced as 72, 74, and 76) within or forming outlet port 36*b*. Ex. 1007, 6:4-7, 6:55-59. Capillary tube 36 and liquid passageway 37 function solely to transport liquid from the liquid storage body to outlet port 36*b* and heater 42, and therefore play no role in actual atomization (i.e., in converting the liquid to aerosol or vapor). Since the interconnecting pore structure of Takeuchi is part of the liquid passageway, it is not part of the atomizer.

f. One of Ordinary Skill in the Art Would Not Incorporate the Porous Component of Takeuchi into the Device of Hon '134

A showing of obviousness must be supported by an articulated reasoning with rational underpinning to support a motivation to combine prior art teachings. *KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. 398, 418 (2007) (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)). Petitioner asserts that it would have been obvious to use the porous component of Takeuchi in the Hon '134 device because "that porous component would provide more efficient and uniform heating due to greater surface area contact between the porous component and the formulation and offer greater ease of manufacturing." Petition at 12-13. However, Takeuchi does not disclose a "heater coil wound around a porous component" as recited in the '957 Patent claims. Even if Takeuchi were combined with Hon '134, the resultant combination would not disclose the claimed invention.

Moreover, Petitioner does not provide sufficient explanation as to why a person of ordinary skill in the art would have wanted to provide "more efficient and uniform heating" in the Hon '134 device, which would require making the proposed combination and then immediately modifying it. Likewise, Schuster merely repeats Petitioner's conclusory statements without explanation or analysis. Ex. 1002 at ¶¶109, 142. Petitioner does not point to any statements in Hon '134 or Takeuchi with regard to efficiency or inefficiency of heating. Petitioner's unsupported, conclusory statements regarding motivation do not constitute an articulated reasoning with rational underpinning for combining Hon '134 and Takeuchi in the manner proposed by Petitioner.

g. Petitioner Does Not Identify Any Disclosure in Hon '134 or Takeuchi That Would Lead to the Specific Arrangement of Elements Recited in Claims 1 and 23

As discussed in (V)(A)(3)(a)-(b), Hon '134 does not disclose a screwthread electrode, much less mated screwthread electrodes connecting the housings of a battery and an atomizer assembly. Further, as shown in Petitioner's own annotated version of Fig. 9 of Hon '134, the MCU and sensor in Hon '134 are located in that portion of the device identified by Petitioner as the atomizer assembly, while liquid storage container 313 is located in that portion of the device identified as the battery assembly. Petition at 16. Petitioner attempts to overcome the latter issue by asserting that metering cavity 320 is the solution storage area, but as discussed in (V)(A)(3)(c), this position is baseless.

Petitioner cites Cox and Counts as providing motivation "to move the sensor to the battery housing as only disposable and inexpensive components would remain in the atomizer housing and would avoid certain device reassembly," but provides no explanation in support of this conclusory statement. Petition at 13. Schuster likewise provides no explanation in his declaration, instead merely reiterating Petitioner's conclusory statements. *See* Ex. 1002, ¶¶112, 122. Neither Cox nor Counts discloses a separate battery assembly housing that connects to an atomizer assembly housing via mated screwthread electrodes, much less the specific configuration of elements within those housings recited in the '957 Patent claims. Indeed, in discussing ground 6, Petitioner presents an annotated version of Fig. 1 of Cox which shows sensor 48 within the portion of the device Petitioner identifies as the atomizer assembly instead of in the battery assembly. Petition at

31. Air flow sensor 51 and detecting sensor 53 are likewise located in the atomizer assembly of Cox. Ex. 1004, 11:21-23. Petitioner does not explain how Cox's positioning of its sensors within the atomizer assembly would provide motivation to move the sensor of Hon '134 out of the atomizer assembly and into the battery assembly. Counts is designed to heat a solid medium, not to atomize a liquid, and consequently does not have a solution storage area. Thus, one of ordinary skill in the art would not look to Counts for guidance in designing a liquid atomization device as recited in the '957 Patent claims.

4. Dependent Claims 3 and 5-9 of the '957 Patent are Not Obvious over Hon '134 and Takeuchi

Claims 3 and 5-9 all depend from independent claim 1. Since each of these dependent claims includes at least those limitations recited in claim 1, all of the arguments set forth above with regard to claim 1 apply equally to the dependent claims.

With regard to claim 7, which depends from claim 1 and specifies that the atomizer assembly has an air intake hole at the secondary screwthread electrode, Petitioner asserts that Hon '134 "discloses the atomizer assembly has an air intake hole at the secondary screwthread electrode (threaded opening 323)." Petition at 17. First, as discussed at (V)(A)(3)(a)-(b), none of the threaded components of Hon '134 (including threaded opening 323) constitute a screwthread electrode, much less a screwthread electrode on an atomizer assembly housing. Second, the disclosure cited by Petitioner does not teach or suggest an air intake hole at or near threaded opening 323; air intake hole 316 in Fig. 9 is not located anywhere near

threaded opening 323. Petitioner also cites Fig. 3, but that figure does not show an air intake hole at all.

With regard to claim 8, which depends from claim 1 and specifies that the electronic cigarette or cigar further comprises a fiber material within the solution storage area, Petitioner asserts that Takeuchi discloses "a fiber material (intercommunicating pore structure 302, capillary tube 36, liquid passageway 371) within the solution storage area." Petition at 17. Petitioner asserts that it would have been obvious to incorporate this fiber material into Hon '134 because the resultant device "would be easier to manufacture," and simplified because the fiber material "would eliminate the need for the pump or valve of Hon '134." *Id.* However, the intercommunicating pore structure of Takeuchi is located in the liquid passageway of the Takeuchi device, not in the solution storage area. *See, e.g.,* Ex. 1007, 3:35-49; 4:4-8. This pore structure functions in elevating liquid from the inlet of the passageway to the outlet via capillary force. *Id.* There is nothing in Takeuchi to teach or suggest incorporating this pore structure into the solution storage area (i.e., into liquid container 32).

With regard to claim 9, which depends from claim 1 and specifies that the porous component comprises a fiber material, Petitioner asserts that "Hon '134 discloses the porous component that the heater coil is wound around (heating wire 402)." However, as discussed at (V)(A)(3)(d), Petitioner fails to establish that Hon '134 teaches or suggests a porous component. Petitioner also cites to the same intercommunicating pore structure of Takeuchi that they cite for claim 8. However, Petitioner does not explain how this pore structure can simultaneously

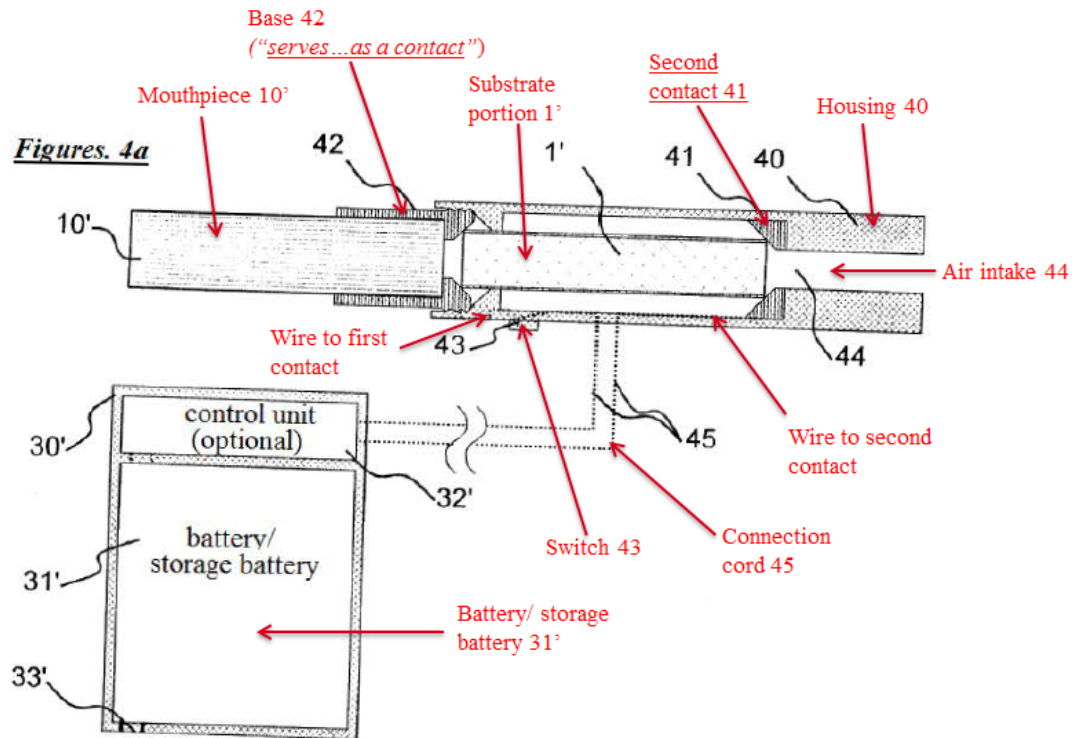
constitute a fiber material within the storage area and a porous component around which a heater coil is wound, given that such components would play very different functional roles. Further, as discussed at (V)(A)(3)(e), the pore structure of Takeuchi does not constitute part of the atomizer.

B. Ground 2: Claims 1-3, 5-12, 14, 16-18, and 21-24 are Not Obvious over Hon '134 in View of Takeuchi and Pienemann

Petitioner requests that claims 1-3, 5-12, 14, 16-18, and 21-24 be cancelled as unpatentable under 35 U.S.C. § 103 over Hon '134 in view of Takeuchi and Pienemann. Petition at 3, 19-25 (Paper 6).

1. Pienemann

PCT Publ. No. WO00/28843 (Ex. 1009, English translation of Ex. 1008; "Pienemann") discloses a smoking article comprising a housing 40 connected to storage battery 31' by connection cord 45. *See* Ex. 1008, Fig. 4A (below, annotations added).



Connection cord 45 comprises two wires, one running to the female thread on the end of housing 40 and the other running to second contact 41 (see dotted lines in figure). Base 42 attached to mouthpiece 10' threadedly engages with the female thread on the housing, securing mouthpiece 10' to the device and serving as a contact. Mouthpiece 10' is a conventional mouthpiece with no electrical function. Once base 42 is connected to housing 40, electricity from the storage battery runs through the connection cord and the wire to the female thread on the housing, then through the male thread of base 42 and through the substrate 1' to second contact 41.

2. Independent Claims 1, 10, and 23 of the '957 Patent are Not Obvious over Hon '134 in View of Takeuchi and Pienemann

Like independent claims 1 and 23, independent claim 10 of the '957 Patent recites an electronic cigarette comprising a "battery assembly housing" containing a battery and a circuit board and having a primary "screwthread electrode" on a first end of the housing, and an "atomizer assembly housing" containing a "solution storage area" and an "atomizer including a heater coil wound around a porous component," wherein the atomizer assembly housing has a secondary "screwthread electrode" located on a second end of the housing. Like claims 1 and 23, the battery assembly housing and atomizer assembly housing in claim 10 are connected via their respective screwthread electrodes. Unlike claims 1 and 23, claim 10 recites that the solution storage area is part of a "solution assembly" within the atomizer assembly housing, and that it includes a liquid containing fiber material.

Claims 1, 10, and 23 require "a separate battery assembly housing that connects to an atomizer assembly housing by mated screwthread electrodes." Ex. 2001 at 7. Hon '134, Takeuchi, and Pienemann, alone or in combination, do not suggest such a structure. Moreover, Petitioner fails to point to any disclosure in Hon '134, Takeuchi, or Pienemann "that would have led to the particular arrangement of elements specified in the claims, including a battery assembly housing having, on one end, an external screwthread electrode; and an atomizer assembly housing having, on one end, a mating internal screwthread electrode."

Id. at 11. Instead, Petitioner uses "'impermissible hindsight,' based on the disclosure of the '957 patent, 'to decide which component goes where.'" *Id.*

a. Pienemann Does Not Overcome the Deficiencies of Hon '134 and Takeuchi

The only elements of claims 1, 10, and 23 for which Petitioner cites Pienemann are the screwthread electrodes on the atomizer and battery assemblies. Petition at 20-25. For all other elements, Petitioner continues to rely entirely on Hon '134 and Takeuchi. Thus, claims 1 and 23 are not obvious over Hon '134, Takeuchi, and Pienemann for at least those reasons set forth at (V)(A).

Petitioner asserts that independent claim 10 is obvious over Hon '134, Takeuchi, and Pienemann. However, the only element of claim 10 for which Petitioner cites Pienemann is the solution assembly comprising a suction nozzle at a first end. For all of the other elements, Petitioner relies on the same Hon '134 and Takeuchi disclosure cited against claims 1 and 23. Thus, all of the arguments set forth at (V)(A) with regard to claims 1 and 23 apply equally to the corresponding limitations of claim 10.

b. Petitioner Fails to Provide Any Rationale for Combining Hon '134 with Takeuchi and Pienemann

Petitioner provides no arguments regarding why or how one of ordinary skill in the art would allegedly combine the cited references to arrive at the invention of claims 1, 10, and 23. Instead, Petitioner simply states that the claims are obvious, and provides a claim chart stating where certain elements of the claims are allegedly found in the references.

c. Pienemann Does Not Disclose a Screwthread Electrode Connecting an Atomizer Assembly Housing and a Battery Assembly Housing or a Solution Storage Area

Petitioner asserts that Pienemann discloses screwthread electrodes (specifically, base 42 and receiving section 55) and "an atomizer assembly connecting with the mouthpiece 10 through primary and secondary screwthread electrodes." Petition at 20-21. However, Pienemann, like every other reference cited by Petitioner, does not teach or suggest separate battery and atomizer assembly housings that connect via mated screwthread electrodes as required by the '957 Patent claims. The screwthreads of Pienemann connect the mouthpiece to the component identified by Petitioner as the atomizer assembly housing. Storage battery 31' in the Pienemann device is connected to the rest of the device by connection cord 45 and the associated wires running to the contacts. *See* Ex. 1009, Fig. 4A. There is no screwthread on the battery component, and the screwthread at the end of housing 40 is clearly not involved in connecting a battery assembly to an atomizer assembly.

Like Counts, Pienemann heats a solid medium rather than aerosolizing a liquid. *See* Ex. 1009, 5:7-8. As such, Pienemann does not teach or suggest a solution storage area, and one of ordinary skill in the art would not look to Pienemann for guidance in modifying an aerosol forming electronic cigarette.

3. Dependent Claims 2, 3, 5-9, 11, 12, 14, 16-18, 21, 22, and 24 of the '957 Patent are Not Obvious over Hon '134 in View of Takeuchi and Pienemann

Claims 2, 3, and 5-9 depend from independent claim 1; claims 11, 12, 14, 16-18, 22, and 23 depend from independent claim 10; and claim 24 depends from independent claim 23. Since each of these dependent claims includes at least those limitations recited in claim 1, all of the arguments set forth above with regard to claim 1 apply equally to the dependent claims.

With regard to claims 3 and 5-9, Petitioner provides absolutely no support for their assertion that these claims are obvious over Hon '134, Takeuchi, and Pienemann. The claims are not included in the chart showing alleged relevant disclosure in the cited references, and Petitioner makes no effort to provide any arguments or rationale for why these claims should be included in Ground 2. *See* Petition at 19-25.

With regard to claims 12 and 24, Petitioner asserts that "one of ordinary skill in the art would have reason to insert the solution assembly of Pienemann in the atomizer assembly of Hon '134 as the solution storage and suction nozzle are inexpensive and become dirty easily." Petition at 20. However, Petitioner does not explain how combining Hon '134 with Pienemann would overcome this alleged problem. Further, incorporating the alleged Pienemann solution assembly into Hon '134 would not work without significant modifications. According to Petitioner, the Pienemann solution assembly comprises both substrate portion 1' (i.e., the solution storage area) and the mouthpiece and associated suction nozzle. In Hon '134, the liquid storage container and mouthpiece are separated by the

vaporization nozzle, as well as various pumps, valves, and metering cavities (see annotated Fig. 9 of Hon '134 below). Thus, one could not incorporate the alleged solution assembly of Pienemann.

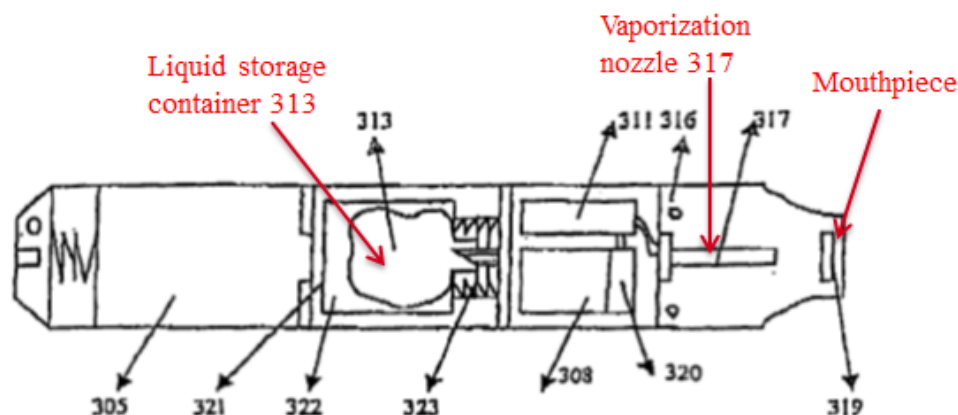


FIG. 9

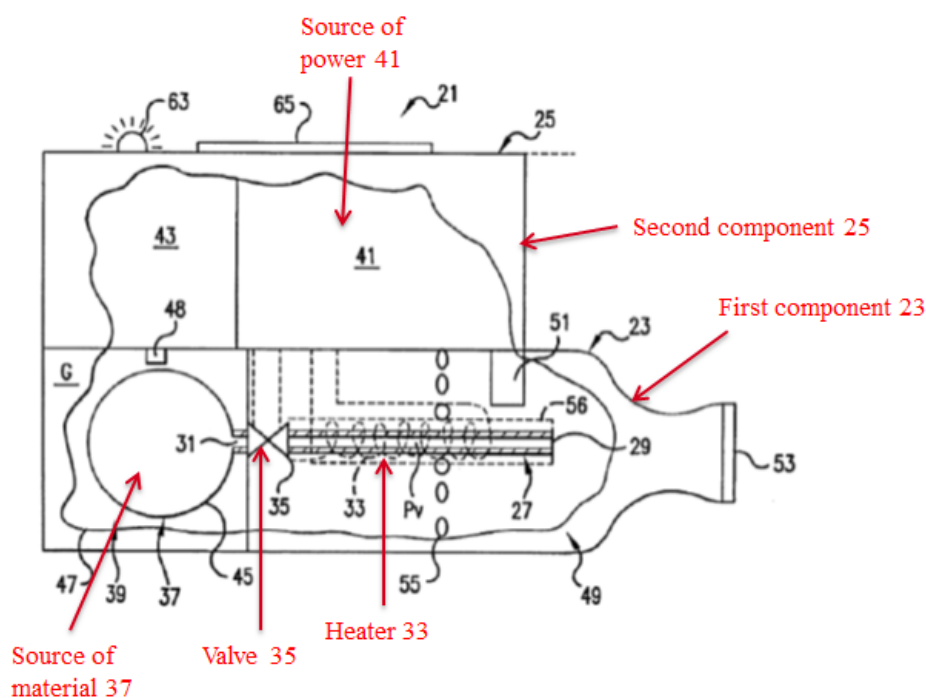
With regard to claims 7 and 18, Petitioner asserts that "[t]o the extent Hon '134 may not disclose a screwthread electrode or an air intake hole at the secondary screwthread, Pienemann does." Petition at 20. However, Petitioner does not bother to explain which claims they are referring to (presumably claims 7 and 18), much less where this alleged air intake hole at the secondary screwthread is disclosed in Pienemann. Contrary to Petitioner's conclusory statement, there is nothing in Pienemann to suggest an air intake at the screwthread connecting mouthpiece 10' and housing 40.

C. Ground 6: Claims 1-12, 14-18, and 21-24 are Not Obvious over Cox in View of Whittemore and Pienemann

Petitioner requests that claims 1-12, 14-18, and 21-24 be cancelled as unpatentable under 35 U.S.C. § 103 over Cox in view of Whittemore and Pienemann. Petition at 3, 27-40 (Paper 6).

1. Cox

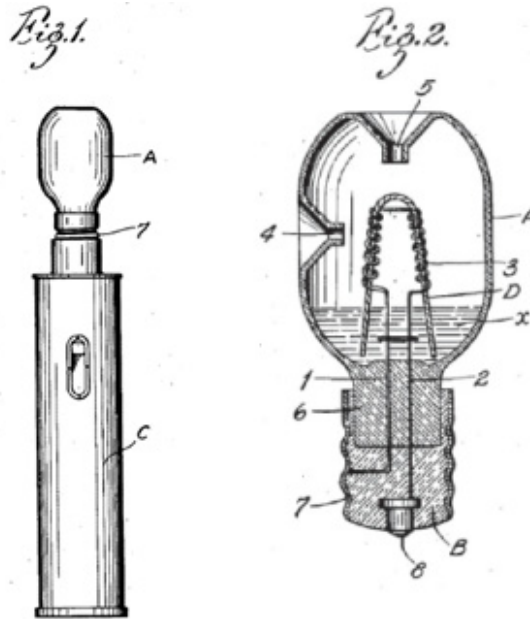
Cox discloses an aerosol generator including a first component 23 and a second component 25 which are preferably attachable/detachable. This aerosol generator is illustrated in Fig. 1 of Cox, below (annotated). Material from source of material 37 in first component 23 travels through valve 35 to a tube containing heater 33, where it is vaporized. Heater 33 is powered by source of power 41 in second component 25.



Cox describes its device as "an inhaler device, such as an inhaler for medicaments." Ex. 1004, 3:47–48. Cox does not mention smoking or nicotine, and never teaches or suggests that its disclosed device could be used as an electronic cigarette that simulates the feel and experience of a cigarette or cigar without burning.

2. Whittemore

U.S. Patent No. 2,057,353 (Ex. 1012; "Whittemore") was cited in an Information Disclosure Statement filed on October 4, 2012 during prosecution of the '957 Patent, and was considered by the Examiner. Ex. 2021, "U.S. Patents," Cite No. 2. Whittemore discloses a "vaporizing unit[] for therapeutic apparatus." Ex. 1012, p. 1, left col., ll. 1-2. This device, illustrated in Fig. 2 of Whittemore below, is similar to a lightbulb. Liquid medicament x is carried along wick D by capillary action, then vaporized by filament/heating element 3. Ex. 1012, p. 1, left col., ll. 19-28. Terminal plug B "is adapted to be plugged into or positioned in a terminal socket forming part of an electric circuit, such, for example, as the receptacle or socket of an ordinary flashlight C." Ex. 1012, p. 1, left col., ll. 39-45. Fig. 1 of Whittemore, below, illustrates terminal plug B plugged into ordinary flashlight C. Electricity flows to filament/heating element 3 via conductors 1 and 2, wherein "conductor 1 is soldered to the inner surface of the metal shell 7 of the plug B, and the other conductor 2 is soldered to the inner surface of the center conducting button 8 of the plug." Ex. 1012, p. 1, left col., ll. 45-49. Whittemore does not teach or suggest the use of its device as an electronic cigarette, and the device does not simulate the feel and experience of smoking.



With regard to Ground 6, Petitioner states "Ground 1 discusses reasons why it would have been obvious to one of ordinary skill in the art to use the porous component of Whittemore in the Cox device." Petition at 29. This is incorrect, as Ground 1 makes no mention of Whittemore.

3. Independent claims 1, 10, and 23 of the '957 Patent are Not Obvious over Cox, Whittemore, and Pienemann

Ground 6 suffers from the same deficiency as the rejected grounds in the '098 IPR, namely failure to identify any disclosure "that would have led to the particular arrangement of elements specified in the claims, including a battery assembly housing having, on one end, an external screwthread electrode; and an atomizer assembly housing having, on one end, a mating internal screwthread electrode." Ex. 2001. Cox, Whittemore, and Pienemann do not teach or suggest, alone or in combination, mated screwthread electrodes on the respective ends of an atomizer and battery assembly housing as recited in the '957 Patent claims, let

alone the specific configuration of elements within each assembly housing. As in the '098 IPR, Petitioner's "'impermissible hindsight,' based on the disclosure of the '957 patent" should be rejected. *Id.*

a. The Devices of Cox and Whittemore Are Not Electronic Cigarettes

Petitioner asserts that "Cox discloses the claim limitations other than screwthread electrodes and a center hole in a screwthread electrode." Petition at 28. However, there is another key claim limitation that is not disclosed in Cox: an electronic cigarette or cigar. Petitioner acknowledges that the device of Cox is "a programmable inhaler," but asserts that "[o]ne of ordinary skill in the art would have been led by market forces to apply the Cox inhaler to the cigarette market," and that "because the Cox inhaler is a high temperature inhaler due to use of vaporization, it would have been obvious to one of ordinary skill to apply the high temperature inhaler to tobacco." Petition at 27-29. Later, Petitioner reverses course and explicitly asserts that the Cox device is an electronic cigarette. Petition at 30.

Neither Cox nor Whittemore teaches or suggests the use of their disclosed devices as electronic cigarettes. Absent such a teaching or suggestion, one of ordinary skill in the art would not have been motivated to modify these devices to make electronic cigarettes, particularly given that such modifications would require a significant redesign. For example, in both cases the device casings would have to be significantly modified, which would require a significant redesign and reconfiguring of the internal components to fit the new casing. In the case of

Whittemore, the device is configured to be used in an upright orientation only. If the device were turned on its side or upside down, liquid medicament X would leak from vapor outlet 5, rendering the device non-functional as a smoking article.

b. One of Ordinary Skill in the Art Would Not Have Incorporated the Screwthreads of Whittemore or Pienemann Into the Cox Device

Pienemann and Cox fail to teach or suggest separate battery and atomizer assemblies connected by mated screwthread electrodes as recited in the '957 Patent claims. Pienemann connects a mouthpiece to its device using screwthreads, but does not teach or suggest the presence of a screwthread on its alleged battery assembly, much less the use of a screwthread electrode to connect its alleged battery and atomizer assemblies. Instead, these assemblies are connected by connection cord 45. Pienemann and Cox likewise fail to disclose the specific arrangement of elements within the battery and atomizer assemblies recited in the '957 Patent claims. For example, sensors 48, 51, and 53 of Cox are all located in the portion of the device identified by Petitioner as the atomizer assembly. Ex. 1004, 5:26-30; 11:21-23; Fig. 1; Petition at 31.

One of ordinary skill in the art would not have been reasonably motivated to incorporate the screwthread of Whittemore into the device of Cox to generate an electronic cigarette because such a device would be non-functional. As noted at (V)(C)(3)(a), the device of Whittemore is configured to be used in an upright orientation only, and would leak from vapor outlet 5 if turned on its side or upside down. Cox, on the other hand, is not limited to an upright orientation.

Outside of a conclusory assertion that one of ordinary skill in the art would incorporate the Whittemore screwthread into Cox, Petitioner offers no details as to how this incorporation would work. There is nothing in Cox to teach or suggest the use of a screwthread electrode to mechanically and electrically connect the first and second components. Cox states that first component 23 and second component 25 are preferably attachable/detachable, but offers no specific guidance as to the mechanism of attachment. Fig. 1 of Cox shows the components attached over a large portion of their surface areas. Specifically, the second component containing the battery is oriented flush against the first component over the second component's entire length. Petitioner does not explain how such an orientation could be achieved with a screwthread connection. Further, Cox discloses that both valve 35 and heater 33 are powered by source 41. As illustrated in Fig. 1, these components are connected to source 41 via separate wires. Cox does not teach or suggest that valve 35 and heater 33 can be powered via a single electrical connection such as a screwthread electrode, and Petitioner does not explain how this could be achieved by incorporating a screwthread electrode. As shown in Figs. 1-3, Cox also discloses pressure sensor 48 and airflow detecting device 51 or pressure drop detecting device 57 in first component 23, all of which must be powered by and send signals to source of power 41 and control device 43 in second component 25. One of ordinary skill in the art would not have been motivated to connect components 23 and 25 via a screw thread electrode because additional separate electrical connections would be needed for the sensors to communicate with the control device.

4. Dependent Claims 2-9, 11, 12, 14-18, 21, 22, and 24 are Not Obvious over Cox, Whittemore, and Pienemann

Claims 2-9 all depend from independent claim 1. Claims 11, 12, 14-18, 21, and 22 all depend from independent claim 10. Claim 24 depends from dependent claim 23. Since each of these dependent claims includes at least those limitations recited in the corresponding independent claim, all of the arguments set forth above with regard to the independent claims apply equally to the dependent claims.

With regard to claim 3, Petitioner asserts that Whittemore "discloses primary and secondary screwthread electrodes (portions 7 and 8)." Petition at 34. This contradicts Petitioner's earlier assertion that 7 and 8 together constitute a secondary screwthread electrode on the end of an atomizer assembly housing, while "(portable casing having an electric battery cell and a conventional socket terminal)" located on "the first end of the battery assembly housing (flashlight C)" constitutes a primary screwthread electrode. Petition at 31.

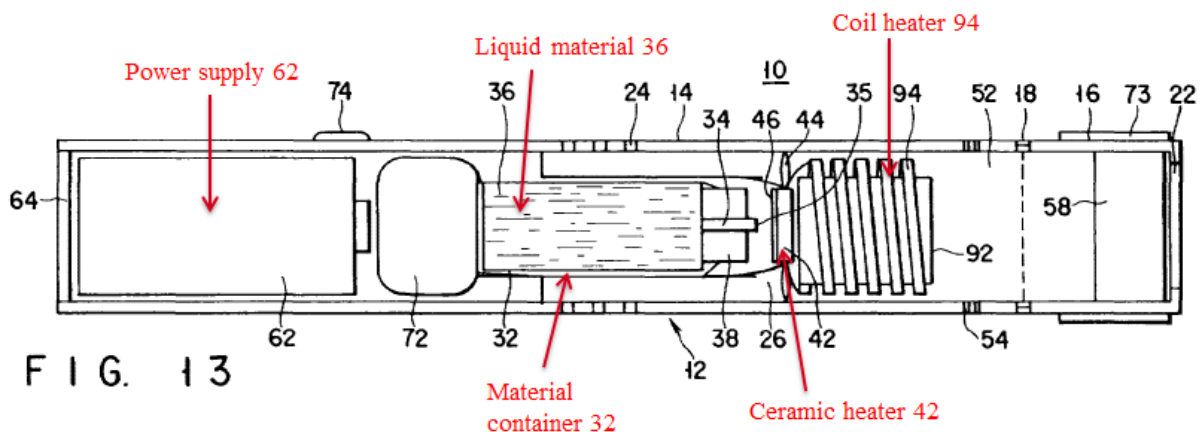
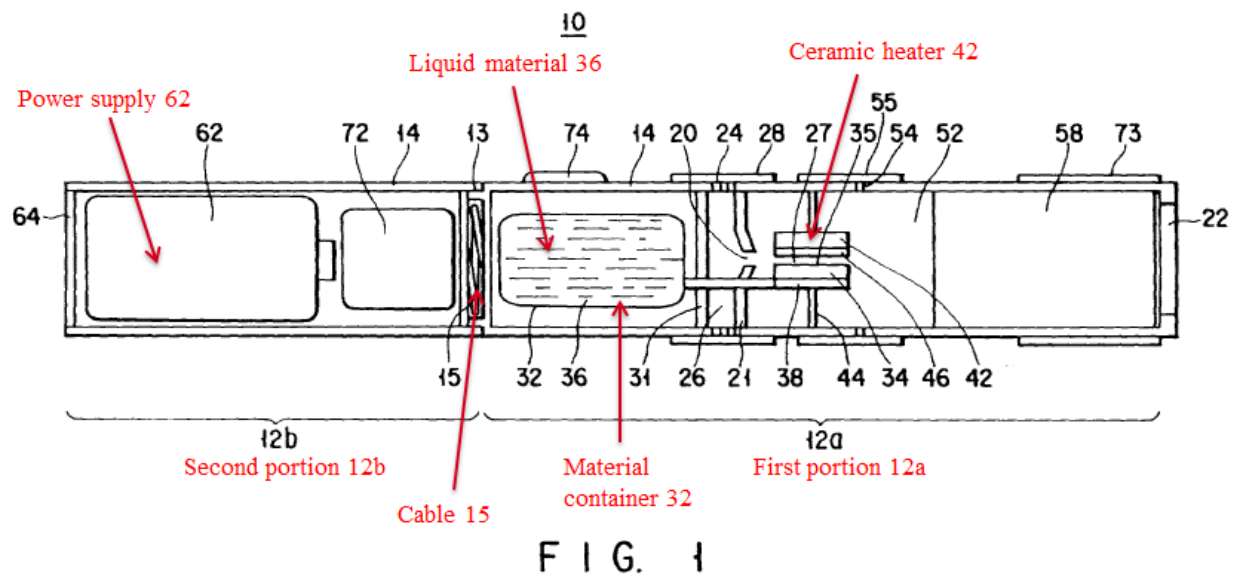
D. Ground 8: Claims 1-3, 6-12, 14, 16-18, and 21-24 are Not Obvious Over Susa in View of Pienemann

Petitioner requests that claims 1-3, 6-12, 14, 16-18, and 21-24 be cancelled as unpatentable under 35 U.S.C. § 103 over Susa in view of Pienemann. Petition at 3, 40-49 (Paper 6).

1. Susa

EP Patent Publ. No. 0845220 (Ex. 1005; "Susa") was cited in an Information Disclosure Statement filed on December 8, 2011 during prosecution of the '957 Patent. Ex. 2023, "Foreign Patent Documents," Cite No. B21. Susa discloses a "flavor generating article" with a cylindrical casing 12 housing a battery, a liquid

material container 32, and a ceramic heater 42. Liquid from the material container exits a discharge port 35, where it is heated and gasified by the ceramic heater. In certain embodiments, the heating component of the Susa device further includes coil heater 94 wrapped around body 92. Two embodiments of the device of Susa are illustrated in Figs. 1 and 13 of Susa, below (annotations added).



2. Independent Claims 1, 10, and 23 of the '957 Patent are Not Obvious over Susa and Pienemann

Petitioner asserts that Susa discloses all of the limitations of claims 1, 10, and 23 of the '957 Patent except for screwthread electrodes. Petition at 41. According to Petitioner, Pienemann discloses screwthread electrodes, and "[i]t would have been obvious to use the electrode in Pienemann with an external electrode on the battery housing." *Id.* Petitioner asserts that one of ordinary skill in the art would have reason to use the alleged screwthread electrodes of Pienemann in the Susa device "to simplify the connection of Susa by combining electrical and mechanical connections, thus obviating the need for a cable." *Id.*

Susa and Pienemann fail to teach or suggest separate battery and atomizer assembly housings connected by mated screwthread electrodes as recited in the '957 Patent claims, let alone the specific arrangement of elements within the assemblies as recited in the '957 Patent claims.

a. One of Ordinary Skill in the Art Would Not Have Incorporated the Screwthreads of Pienemann Into the Susa Device

Petitioner states that "Susa discloses a connecting portion 13 that connects portions 12a and 12b through a known structure such as screwthreads." Petition at 42. In support of this statement, Petitioner cites the following passage from Susa:

The casing 12 comprises a first portion 12a to be held by the user's mouth, and a second portion 12b for incorporating a power supply and the like. The two portions 12a and 12b are electrically connected to each other through a cable 15 stored in a space formed in the casing main body 14 to correspond to the connecting portion 13. As the connecting portion 13, a known

structure, e.g., a screw or a fitting pair, can be employed. Ex. 1005, 5:17-28.

This passage cuts against Petitioner's assertion that one of ordinary skill in the art would have been motivated to incorporate a screwthread electrode into Susa. Even when explicitly suggesting the use of a screw to mechanically connect portions 12a and 12b, Susa stated that the electrical connection was achieved using cable 15. This cable is necessary because it allows Susa's sensor 73 (which is located in the alleged atomizer assembly) to communicate with control circuit 72. Ex. 1005, 8:55-58. Such two-way communication, in addition to powering other components, could not be achieved through a single screwthread electrode.

Petitioner's assertion that incorporating a screwthread electrode into the Susa device would "simplify the connection of Susa by combining electrical and mechanical connections, thus obviating the need for a cable" is baseless. Susa's cable required for two-way communication with the control circuit is easier to make, assemble, and use, and offers greater design flexibility at low cost versus a screwthread electrode. As such, one of ordinary skill in the art would not consider a screw thread electrode to be a simpler solution than the use of cable 15.

b. Susa Does Not Disclose a Heating Coil Wound Around a Porous Component

Petitioner asserts that Susa "discloses an atomizer including a heater coil (coil heater 94) wound around a porous component (formed body 92)." Petition at 43. However, coil heater 94 and formed body 92 of Susa do not atomize liquid; that function is performed by ceramic heater 42. Petition at 42. Petitioner offers

no explanation for its assertion that formed body is a porous component, instead merely stating that "[t]he formed body may have 'good air permeability' and contain 'a tobacco component.'" Petition at 40-41. Schuster offers the same conclusory statement without further explanation. *See* Ex. 1002, ¶¶91, 351. There is no evidence supporting or suggesting that formed body 92 absorbs liquid, or that it is even permeable to liquid. Indeed, the Board previously reached the same conclusion in IPR 2015-00859: "we are not persuaded that that [sic] formed body 92 in Susa is a 'porous component'...or that Petitioner has demonstrated that Susa teaches a heating wire wound on a porous component..." Ex. 2025 at 18.

c. Susa Does Not Disclose a Fiber Material in a Solution Storage Area

With regard to claim 10, Petitioner cites to Fig. 13 and asserts that "Susa discloses a solution storage area (formed body 92) containing fiber material in the solution storage area." Petition at 46. Petitioner presumably means to refer to formed body 92 as the fiber material, not the solution storage area. *See* Petition at 45 referring to claims 8 and 9. Regardless, Petitioner's assertion is without merit. Even if formed body 92 were a fiber material, it is plainly not located in liquid material container 32 (i.e., solution storage area) in cited Fig. 13.

E. Ground 9: Claims 1-4, 6-9, 14, 16-18, and 21-24 Are Not Obvious Over Susa in View of Pienemann and McRae

Petitioner requests that claims 1-4, 6-9, 14, 16-18, and 21-24 be cancelled as unpatentable under 35 U.S.C. § 103 over Susa in view of Pienemann and McRae. Petition at 3, 49 (Paper 6). As discussed at (V)(D) with regard to ground 8,

independent claims 1 and 23 are not obvious over Susa in view of Pienemann. Ground 9 largely relies on the same references, but further asserts that "[t]o the extent Susa may not disclose a microcontroller in a battery housing, one of ordinary skill would have had reason to provide a microcontroller of McRae (U.S. Patent Publ. No. 2003/0033055; Ex. 1013) in the device by Susa because of the complex control requirements of the device." Petition at 49. This conclusory statement represents the entirety of Petitioner's argument; Petitioner provides no objective evidence in support of the asserted combination, and indeed does not even provide the customary claim chart. Even taken at face value, the asserted combination does not overcome the deficiencies of Susa and Pienemann discussed at (V)(D) because the references do not teach or suggest mated screwthread electrodes on the respective ends of an atomizer and battery assembly housing as recited by the '957 Patent claims, let alone the specific configuration of elements within each assembly housing. Accordingly, ground 9 fails for at least the same reasons as ground 8.

F. Ground 10: Claims 1-3, 6-12, 14, 16-18, and 21-24 Are Not Obvious Over Susa in View of Pienemann and Whittemore

Petitioner requests that claims 1-3, 6-12, 14, 16-18, and 21-24 be cancelled as unpatentable under 35 U.S.C. § 103 over Susa in view of Pienemann and Whittemore. Petition at 3 (Paper 6). As discussed at (V)(D) with regard to ground 8, independent claims 1 and 23 are not obvious over Susa in view of Pienemann. Although not addressed with regard to ground 8, independent claim 10 is not obvious over those references for at least the same reasons as claims 1 and 23.

Ground 10 largely relies on the same references as ground 8, but further asserts that Whittemore "discloses a heater coil (filament 3) wound around a porous component (wick D) comprising a fiber material that meets the limitations of claims 9 and 11," and refers to ground 1 for "reasons to use the fiber material as disclosed in Whittemore." Petition at 49-50. Once again, Petitioner's argument is limited to a conclusory statement with no supporting objective evidence and no explanation of how or why one of ordinary skill in the art would be motivated to arrive at the asserted combination. Even if taken at face value, the asserted combination fails to teach or suggest mated screwthread electrodes on the respective ends of an atomizer and battery assembly housing as recited by the '957 Patent claims, let alone the specific configuration of elements within each assembly housing. Thus, ground 10 fails for at least the same reasons as ground 8.

G. Ground 13: Claims 1, 3, 6-9, and 23 Are Not Obvious Over Counts in View of Whittemore and McRae

Petitioner requests that claims 1, 3, 6-9, and 23 be cancelled as unpatentable under 35 U.S.C. § 103 over Counts in view of Whittemore, and McRae. Petition at 3, 50-56 (Paper 6).

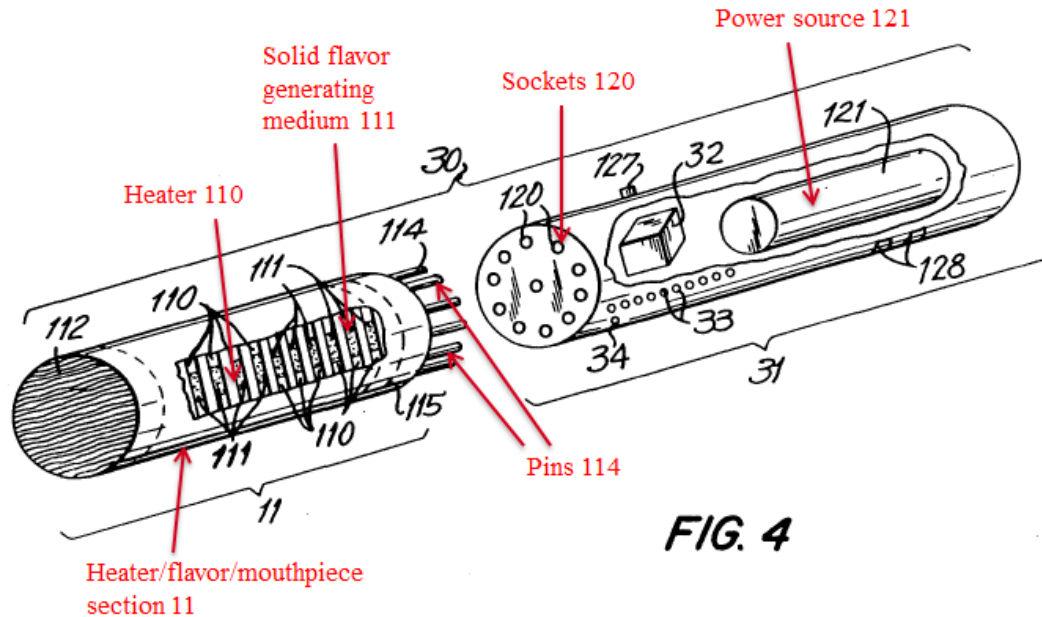
1. Independent Claims 1 and 23 of the '957 Patent are Not Obvious over Counts, Whittemore, and McRae

Ground 13 suffers from the same deficiency as the rejected grounds in the '098 IPR, namely failure to identify any disclosure "that would have led to the particular arrangement of elements specified in the claims, including a battery assembly housing having, on one end, an external screwthread electrode; and an

atomizer assembly housing having, on one end, a mating internal screwthread electrode." Ex. 2001. Counts, Whittemore, and McRae do not teach or suggest, alone or in combination, mated screwthread electrodes on the respective ends of an atomizer and battery assembly housing as recited in the '957 Patent claims, let alone the specific configuration of elements within each assembly housing. As in the '098 IPR, Petitioner's "'impermissible hindsight,' based on the disclosure of the '957 patent" should be rejected. *Id.*

a. One of Ordinary Skill in the Art Would Not Incorporate the Screwthread of Whittemore Into the Counts Device

Counts was cited in an Information Disclosure Statement filed on December 8, 2011, and was considered by the Examiner. Ex. 2023, "U.S. Patent Documents," Cite No. A7. As shown in Fig. 4 of Counts, below (annotations added), Counts discloses flavor delivery article 50, which individually heats a separate portion or "charge" of flavor generating medium 111 using separate heating elements 110. Ex. 1006, 2:1-4. Counts further discloses a control means to control the individual heating of each "charge." *Id.* Each "charge" corresponds to a puff from a conventional cigarette so that the device mimics a conventional cigarette. *Id.* at 3:21-39. Counts further includes a plurality of contact pins 114 and corresponding sockets 120 to separately provide power to each heater. *Id.* at 3:63-4:2. Control of the heaters is accomplished through knob 122 or control circuit 10, which can be turned to select each separate contact pin and socket to cause each successive puff. *Id.* at 4:3-13, 10:20-25.



Petitioner ignores the purpose of pins 114 and sockets 120, and asserts that one of ordinary skill in the art would have replaced those separate and required electrical connections with a single screwthread electrode. Such a modification would alter the fundamental operation of the Counts device. Petitioner does not provide a reasonable rationale for making such a change, and does not explain how Counts could function in its intended manner by producing successive puffs if the multiple pins and sockets were replaced with a single screwthread electrode.

b. Counts Does Not Disclose a Solution Storage Area

Petitioner asserts that "Counts discloses a solution storage area (flavor generating medium 111) in the atomizer assembly housing (section 11)," citing Ex. 1006, 3:46-52, 7:23-27, 7:29-32, and Figs 6, 7G-H. Petition at 53. Even a cursory reading of the cited portions of Counts shows that they do not support Petitioner's assertion.

Counts 3:46-52 refers to Figs. 1 and 2, and notes that "[s]ection 11 includes a plurality of heaters 110, *each having deposited on its surface a quantity of flavor generating medium 111*" (emphasis added). No solution storage area would be needed in a device wherein the flavor generating medium is deposited on the surface of the heaters. Counts 7:23-27 characterizes the structure of Fig. 7G as similar to that of Fig. 7C in which "[t]he *flavor generating medium is coated on the inner or outer surface 724* of cylinder 72" (emphasis added). Ex. 1006, 6:46-48. Counts 7:29-32 characterizes Fig. 7H as showing "an extruded rod 770 (hollow or solid) *made solely of flavor generating medium* and components to add mechanical strength, provided with slidable heater 771" (emphasis added). Coating of flavor generating medium on a cylinder or the use of a rod actually made of flavor generating medium is inconsistent with the use of a solution storage area.

The disclosure cited by Petitioner is actually consistent with the overall teaching of Counts, which utilizes a solid flavor generating medium in contact with the heater rather than a liquid flavor generating medium. Ex. 1006, 2:48-49; 3:50-52; 5:41-45.

2. Dependent Claims 3 and 6-9 of the '957 Patent are Not Obvious over Counts, Whittemore, and McRae

Claims 3 and 6-9 all depend from independent claim 1. Since each of these dependent claims includes at least those limitations recited in claim 1, all of the arguments set forth above with regard to claim 1 apply equally to the dependent claims.

With regard to claim 7, Petitioner bizarrely asserts after having relied entirely on Whittemore for the alleged screwthread electrode element of claims 1 and 23 that Counts discloses an atomizer assembly "having an air intake hole at the secondary screwthread electrode." Petition at 54-55. Since Counts does not disclose a screwthread, it clearly cannot disclose an air intake hole "at the secondary screwthread electrode." Further, Petitioner fails to explain where the alleged "air intake hole" is located. Counts 11:45-55 cited by Petitioner relates to MOSFET switch of the disclosed device and makes no mention of intake holes, while cited Fig. 10 is merely a schematic diagram of a control circuit.

H. Ground 14: Claims 2, 10-12, 14, 16-18, 21, 22, and 24 Are Not Obvious Over Counts, Whittemore, McRae, and Pienemann

Petitioner requests that claims 2, 10-12, 14, 16-18, 21, 22, and 24 be cancelled as unpatentable under 35 U.S.C. § 103 over Counts, Whittemore, McRae, and Pienemann. Petition at 3, 56-60 (Paper 6). As discussed at (V)(G) with regard to ground 13, independent claims 1 and 23 are not obvious over Counts in view of Whittemore and McRae. Although not addressed with regard to ground 13, independent claim 10 is not obvious over those references for at least the same reasons as claims 1 and 23. Ground 14 largely relies on the same references as ground 13, but further asserts that one of ordinary skill in the art "would have reason to add the insertable solution assembly of Pienemann to the electronic cigarette of Counts as the flavor medium could be replaced without replacing the potentially expensive heater section." Petition at 56. Again, Petitioner's argument is limited to a conclusory statement with no supporting objective evidence or

explanation of how or why one of ordinary skill in the art would arrive at the asserted combination. Even if taken at face value, the asserted combination fails to teach or suggest mated screwthread electrodes on the respective ends of an atomizer and battery assembly housing as recited by the '957 Patent claims, let alone the specific configuration of elements within each assembly housing. Thus, ground 14 fails for at least the same reasons as ground 13.

I. Grounds 3-5, 7, 11, 12, 15, and 16: Claims 4, 13, 15 are Not Obvious Over Counts, Whittemore, McRae, and Hon '043

Grounds 3-5, 7, 11, 12, and 15 focus exclusively on claims 4 (grounds 3, 11, and 15), 13 (grounds 5, 7, and 12), and 15 (grounds 4, 11, and 16). For each of these, Petitioner merely adds a single reference (CN 2719043 ("Hon '043;" Ex. 1011, English translation of Ex. 1010) for claims 4 and 15, Counts for claim 13) to the references cited against the corresponding independent claim. Petitioner does not assert in any of these grounds that Hon '043 or Counts disclose any limitation of the underlying independent claim. Since Hon '043 and Counts do not remedy the deficiencies of the other cited references with respect to the independent claims, claims 4, 13, and 15 are patentable over the cited references for at least the same reasons as their corresponding independent claims.

VI. CONCLUSION

For the reasons discussed above, Patent Owner requests that the Board deny the Petition for *Inter Partes* Review of the '957 Patent.

Respectfully submitted,

Date: October 20, 2015 By: / Michael J. WISE /
Michael J. Wise, Reg. No. 34,047
Perkins Coie LLP
1888 Century Park East, Suite 1700
Los Angeles, CA 90067
Phone: 310-788-3210
Facsimile: 310-788-3399
MWISE@PerkinsCoie.com
Counsel for Patent Owner

CERTIFICATE OF SERVICE

The undersigned hereby certifies that a copy of this Patent Owner Preliminary Response to Petition for *Inter Partes* Review has been served via electronic mail upon the following counsel of record for Petitioner on October 20, 2015:

Erik G. Swenson, Lead Counsel
George W. Jordan III, Backup Counsel
Norton Rose Fulbright US LLP
3100 RBC Plaza
60 South 6th St.
Minneapolis, MN 55402

erik.g.swenson@nortonfulbright.com

george.jordan@nortonfulbright.com

USNRF-JTI-Fontem-IPR-Service@nortonrosefulbright.com

/ Amy Candeloro /

Amy Candeloro

Paralegal

Perkins Coie LLP