

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 IPR2015-01587

Patent No. 8,365,742

**PATENT OWNER'S PRELIMINARY RESPONSE TO PETITION FOR
INTER PARTES REVIEW OF U.S. PATENT NO. 8,365,742**

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LIST OF EXHIBITS

Petitioner's Exhibits	
Exhibit	Description
1001	U.S. Patent No. 8,365,742 (“742 patent”)
1002	Declaration of Jeffrey A. Schuster, Ph.D.
1003	U.S. Patent No. 6,155,268 (“Takeuchi”)
1004	U.S. Patent No. 6,234,167 (“Cox”)
1005	U.S. Patent No. 4,947,874 (“Brooks”)
1006	U.S. Patent No. 2,057,353 (“Whittemore”)
1007	EP 0 845 220 (“Susa”)
1008	WO 2007/078273 A1 (“Liu”)
1009	‘742 Prosecution History, Preliminary Amendment
1010	‘742 Prosecution History, Non-final Office Action
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1015	‘742 Prosecution History, Certificate of Correction
1016	Fontem Litigation Joint Claim Construction Chart
1017	Claim Construction Rulings in CV 14-1645
1018	Webster’s New World Collegiate Dictionary (“detach”)

1019	Oxford American Dictionary & Thesaurus (“frame”)
1020	McGraw-Hill Dictionary of Scientific and Technical Terms (5th ed.
1021	Academic Press Dictionary (“permeability”) (“solid”)
1022	American Heritage Dictionary (“atomize”) (“end”) (“substantial”)
1023	Merriam-Webster.com (“aerosol”) (“atomizer”) (“permeable”) (“porous”)
Patent Owner’s Exhibits	
Exhibit	Description
2001	IPR2015-00859, Paper 9, Decision Denying Institution - September 16, 2015
2002	<i>Kinetic Tech, Inc. v. Skyworks Solutions, Inc.</i> , Case IPR2014-00529, Paper 8, Decision Denying Institution of <i>Inter Partes</i> Review - September 23, 2014
2003	<i>Fontem v. Logic Tech. Dev. LLC</i> , Case No.14-cv-01654 (C.D. Cal.), Dkt. 20, Proof of Service of Complaint – March 12, 2014
2004	<i>Fontem v. Logic Tech. Dev. LLC</i> , Case No.14-cv-01654 (C.D. Cal.), Dkt. 24, Answer to First Amended Complaint - May 2, 2015
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)
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)

2007	IPR2015-01299 Paper 5 Petitioners' Updated Mandatory Notices - August 17, 2015
2008	IPR2015-01301 Paper 6 Petitioners' Updated Mandatory Notices - August 17, 2015
2009	IPR2015-01302 Paper 5 Petitioners' Updated Mandatory Notices - August 17, 2015
2010	IPR2015-01304 Paper 5 Petitioners' Updated Mandatory Notices - August 17, 2015
2011	<i>Fontem v. NJOY</i> , Case No.14-cv-01645 (C.D. Cal.), Dkt. 231 Application to Appear <i>Pro Hac Vice</i> - George Jordan, September 4, 2015
2012	<i>Fontem v. NJOY</i> , Case No.14-cv-01645 (C.D. Cal.), Dkt. 232 Application to Appear <i>Pro Hac Vice</i> - Eric Swenson, September 4, 2015
2013	<i>Fontem v. NJOY</i> , Case No.14-cv-01645 (C.D. Cal.), Dkt. 251 Defendants' Motion to Exclude Expert Testimony – September 17, 2015
2014	<i>Fontem v. NJOY</i> , Case No.14-cv-01645 (C.D. Cal.), Dkt. 257 Logic's Motion for Summary Judgment of Non Infringement – September 17, 2015
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2016	<i>Gen. Electric Co. v. Transdata, Inc.</i> , Case IPR2014-01380, Paper 34, Decision Denying Institution of <i>Inter Partes</i> Review PTAB – April 15, 2015
2017	<i>VMWare v. Good Tech. Software, Inc.</i> , Case IPR2015-00031, Paper 11, Decision Denying Institution of <i>Inter Partes</i> Review PTAB – March 6, 2015

2018	New Oxford American Dictionary, 2001
2019	IPR2015-00859, Paper 5, Patent Owner's Preliminary Response to Petition for <i>Inter Partes</i> Review of U.S. Patent No. 8,365,742, June 20, 2015
2020	<i>Reserved</i>
2021	<i>Fontem v. NJOY</i> , Case No.14-cv-01645 (C.D. Cal.), Dkt. 34, Revised Joint Claim Construction and Prehearing Statement, September 30, 2014
2022	<i>Fontem v. Logic Tech. Dev. LLC</i> , Case No.14-cv-01654 (C.D. Cal.), Dkt. 47, Order re Consolidation, January 22, 2015
2023	<i>Fontem v. Logic Tech. Dev. LLC</i> , Case No.14-cv-01654 (C.D. Cal.), Dkt. 1, Complaint, March 5, 2014

1. INTRODUCTION

JT INTERNATIONAL S.A., (“JTI” or “Petitioner”) filed a Petition for *Inter Partes* Review of U.S. Patent No. 8,365,742 (the “’742 patent”) on July 14, 2015. Petition (Paper 1). The Patent Trial and Appeal Board (the “Board”) mailed a Notice of Filing Date Accorded to Petition on July 31, 2015. Notice of Filing (Paper 4).

Pursuant to 37 C.F.R. § 42.107, Fontem Holdings 1 B.V. (“Patent Owner”) submits this Preliminary Patent Owner Response requesting that the petition be denied because (i) the 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), and (ii) the Petition is barred under 35 U.S.C. § 315(b).

1.1 The Prior Petition By VMR

This is the second Petition for IPR that has been filed for the ’742 patent. The first was filed on March 10, 2015 by VMR Products LLC, and was denied on September 16, 2015. *See*, Case IPR2015-00859, Decision Denying Institution of *Inter Partes* Review (Paper 9) (the “*VMR Decision*”), provided as Ex. 2001 hereto. As discussed in the Decision, the seven grounds of unpatentability advanced in the VMR Petition were deficient in multiple respects.

1.2 The New Petition By JTI

The instant Petition suffers from the same fatal flaws as the earlier petition, including most notably the conclusory reasoning provided by Petitioner and its expert, Dr. Schuster. Petitioner resorts to attorney argument that the missing elements were “well known” and “obvious to one of ordinary skill.” But, “[a]rgument of counsel cannot take the place of evidence lacking in the record.” *Estee Lauder Inc. v. L'Oreal, S.A.*, 129 F.3d 588, 595 (Fed. Cir. 1997). *See also Velandier v. Garner*, 348 F.3d 1359, 1371 (Fed. Cir. 2003) (attorney argument and conclusory statements, absent evidence, are entitled to little, if any, weight). Petitioner’s expert, Dr. Schuster submits a declaration (Ex. 1002) that verbatim repeats the assertions set forth in the copy of the Petition (Paper 1). *ActiveVideo Networks, Inc. v. Verizon Comm., Inc.*, 649 F.3d 1312, 1327 (Fed. Cir. 2012) (rejecting “conclusory and factually unsupported” expert testimony regarding obviousness). *See also Kinetic Tech., Inc. v. Skyworks Solutions, Inc.*, IPR2014-00529, Paper 8, September 23, 2014, Decision Denying Institution of *Inter Partes* Review, p. 15 (PTAB 2014) (Ex. 2002) (“Merely repeating an argument from the Petition in the declaration of a proposed expert does not give that argument enhanced probative value.”).

2. THE IPR PETITION IS TIME-BARRED BECAUSE PETITIONER JTI AND LOGIC ARE IN PRIVY FOR PURPOSES OF § 315(b)

2.1 35 U.S.C. § 315(b)

Under 35 U.S.C. § 315(b), an IPR trial 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. By its terms, the preclusive effect of § 315(b) extends beyond the parties in an earlier-filed litigation to encompass certain nonparties, *i.e.*, 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. 2016) ("*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 in *Gen. Electric Co.*, further held that the § 315(b) bars "institution of a later proceeding when the later proceeding's petitioner and an entity involved in the earlier litigation are privies with respect to the earlier litigation." *Id.* at 12.

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. 2016). *See also, e.g., VMWare v. Good Tech. Software, Inc.*, IPR2015-00031, Paper 11 at 3-4 (PTAB Mar. 6, 2015) (Ex. 2017) ("*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.*

2.2 Timeline

On March 5, 2014, Fontem filed a complaint in the Central District of California (“CACD”) against Logic Technology Development, LLC (“Logic”) for infringement of the ‘742 patent. Ex. 2023; *Fontem Ventures B.V. et al. v. Logic Tech. Dev. LLC*, CACD case no. 2:14-cv-01654 (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 was Victor de Gyarfas of Foley & Lardner. Following an agreement to extend time to answer, and the filing of an amended complaint, Mr. de Gyarfas answered the amended complaint on May 2, 2014, and alleged, *inter alia*, invalidity, non-infringement and unenforceability of the ‘742 patent. Ex. 2004.

Under 35 U.S.C. § 315(b), the one-year bar for Logic or a real-party-in-interest or privity of Logic to file an IPR petition on the ‘742 patent was triggered on March 12, 2015. On April 30, 2015, Petitioner JTI announced it had reached agreement to acquire Logic. Ex. 2005. On June 26, 2015, JTI’s attorneys Swenson and Jordan III from the firm Norton Rose Fulbright US LLP (“NRF”) filed the instant Petition. These same NRF attorneys also filed two additional petitions against patents in the Logic Litigation, namely, 8,375,957 and 8,689,805,

filed on June 26 and July 15, 2015, respectively. *See* IPR2015-01513 (’957) and IPR2015-01578 (’805).

On July 27, 2015, JTI completed its acquisition of Logic, and the closing was publicized by JTI the next day. (Ex. 2006). On August 17, 2015, Logic and its co-petitioners in four pending IPRs against Fontem patents filed notices styled as “Petitioners’ Updated Mandatory Notices,” stating that as a result of being acquired, “JT International S.A. is a real party-in-interest for Logic Technology Development LLC....” Exs. 2007-2010.

On September 4, 2015, JTI’s NRF attorneys Swenson and Jordan III (and two other NRF attorneys) applied to appear *pro hac vice* in the Logic Litigation. Their applications state that these NRF attorneys were now also being retained to represent Logic.¹ *See*, Exs. 2011, 2012. On September 17, 2015, JTI’s attorneys Swenson and Jordan III filed motions in the Logic Litigation, 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 and 2015, show that Attys. Swenson and Jordan III are now lead counsel in the Logic Litigation.

¹ The NRF attorneys filed their appearances in the Logic Litigation in Case No. CV14-1645-GW (MRWx) per the Court’s order. Ex. 2022, p. 1.

2.3 Petitioner JTI Is In Privity With Logic.

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 PTO 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. Exs. 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, Mr. de Gyarfas, as lead counsel in the Logic Litigation. Attys. 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 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. 2016). As such, Petitioner is in privity with Logic in the prior filed litigation involving the ’742 Patent. Thus, like the Board held in *Gen. Electric*, Petitioner is

also barred from requesting IPR institution when Petitioner and Logic are admitted to be privies with respect to the earlier litigation involving the '742 Patent.

The facts of this case closely parallel those of *VMWare*. (Ex. 2017). In both *VMWare* and this IPR, (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 in *VMWare*. Since Petitioner filed the instant Petition more than one year after its privy Logic was served with a complaint alleging patent infringement, Petitioner's petition is barred under § 315(b).

3. 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 (2013). Moreover, 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).

3.1 Porous Component

Patent Owner's Construction	Petitioner's Construction
A component of the atomizer assembly having pores providing for absorption or diffusion of liquid.	A part which liquid or gas can pass through or be absorbed by.” Petition at pp. 11-12 (Paper 1).

In denying the IPR Petition in IPR 2015-00859 involving the '742 Patent, the Board construed the term porous component to mean “a component of the atomizer assembly in the electronic cigarette that includes pores and is permeable to liquid, such as cigarette solution from the cigarette solution storage area.” Ex. 2001 at 10. While Patent Owner agrees that the porous component absorbs liquid, not gas, the Board's definition is too broad.

As described in the '742 Patent, the porous component provides “liquid absorption and diffusion, and the ability to absorb liquid stored in the cigarette bottle assembly.” Ex. 1001-0013, '742 Patent, 3:25–26. And, that it “absorbs the cigarette liquid from the perforated component for liquid storage....” Ex. 1001-0013, '742 Patent, 3:66–67. The function of the porous component is to draw liquid from the liquid storage to the atomizer for vaporization. That is why the

porous component is in the atomizer assembly, has a coil wrapped around it, and is in contact with the liquid supply. It is not merely a component that has holes and is therefore permeable to liquid.

Petitioner proposes a broader definition than the Board, specifically that the porous component be permeable to liquid or gas. Petitioner's construction is unreasonably broad because, as explained above, based upon the claims and the disclosure of the '742 patent, a porous component is not simply a component with holes that is permeable to gas. It absorbs liquid from the liquid supply and delivers it to the coil for atomization.

3.2 Liquid Supply And Liquid Storage Component

Patent Owner's Construction	Petitioner's Construction
A supply of liquid; a component that stores a supply of liquid.	None.

Claims 2 and 3 of the '742 patent recite a "liquid storage component" and a "liquid supply," respectively. "Liquid supply" needs no construction and means exactly what it says: a supply of liquid. Similarly, a "liquid storage component" needs no construction and is a component that stores a supply of liquid. The '742 patent specification discloses "[a] component for liquid storage of the cigarette bottle assembly stores the nicotine liquid." Ex. 1001-012, '742 Patent, 1:38–39.

“The perforated component for liquid storage (9) is made of such materials as PLA fiber, terylene fiber or nylon fiber, which are suitable for liquid storage” and “[t]he perforated component for liquid storage (9) of the cigarette bottle assembly and the porous component (81) of the atomizer (8) contact each other to achieve the capillary impregnation for liquid supply.” Ex. 1001-0013, ’742 Patent, 3:1–54, 4:36–40.

3.3 Frame

In denying the IPR Petition in IPR 2015-00859 involving the ’742 Patent, the Board construed the term frame to mean “a rigid structure.” Ex. 2001 at 8. Petitioner adopts the Board’s construction. Patent Owner does not disagree but notes that the frame need only be sufficiently rigid to support or hold up the porous component.

3.4 Heating Wire Wound On A Part Of The Porous Component

Patent Owner’s Construction	Petitioner’s Construction
The heating wire is wrapped around and in contact with a part of the porous component.	None.

Claims 1–3 of the ’742 patent recite “a heating wire wound on a part of the porous component.” The ’742 patent specification discloses and illustrates such an

embodiment in Figs. 17 and 18. The description of Figs. 17 and 18 includes: “The porous component (81) is wound with heating wire (83) in the part that is on the side in the axial direction of the run-through hole (821).” Ex. 1001-0014, ‘742 Patent at 5:47–49. Fig. 18 shows the heating wire is in contact with the part of the porous component. Consistent with the above construction of the porous component to draw liquid from the liquid supply to the atomizer for atomization, the heating wire is “wound **on** a part of the porous component.” Emphasis added. The word “on” further indicates that the wire touches the component. The New Oxford American Dictionary defines “on” to mean “1. Physically in contact with and supported by (a surface).” Ex. 2018 at 1194.

3.5 Run-Through Hole

Patent Owner’s Construction	Petitioner’s Construction
A hole extending through.	A passageway between surfaces of a body or bodies. Petition, p. 9.

Claims 1–3 of the ’742 patent recite “a frame” having a “run-through hole.” The ’742 patent specification illustrates a frame with a run-through hole in Fig 18. “The frame (**82**) has a run-through hole (**821**) on it.” Ex. 1001-0014, ‘742 Patent, 5:46–47. Fig. 18 shows the run-through hole 821 extending through the frame. The run-through hole is a through hole with open ends.

Petitioner propose that a run through hole means a passageway between surfaces of a body or bodies. Petitioner’s proposed construction is unreasonably broad because it is not limited to a hole. According to Petitioner a passageway between two rectangular plates is a run-through hole. A pair of plates do not define a run-through hole because they are open on the sides. A run-through hole has to have open ends and an enclosed passage in between, *i.e.*, “a hole extending through.”

3.6 Atomizer

Patent Owners Construction	Petitioner’s Construction
A component that converts liquid into aerosol or vapor.	A device that converts a substance into an aerosol or vapor. Petition at 11.

The broadest reasonable interpretation of the term “atomizer” is a “component that converts liquid into aerosol or vapor.” Petitioner’s subsidiary (along with its co-defendants in related litigation) already agreed to that construction. *Fontem v. NJOY*, Case No. 14-1645, Dkt. 34 at 7 (Ex. 2021).

Claims 1, 2 and 3 recite an “atomizer” that includes a “frame,” “porous body,” and a “heating wire.” The ‘742 patent specification discloses that “the atomizer (8) works to atomize the cigarette liquid and produce gas flow, which

enters the cigarette holder shell (b).” Ex. 1001-0014, ‘742 Patent, 5:21–23. And, that:

In the fifth preferred embodiment, as shown in FIGS. 17 and 18, the atomizer assembly is an atomizer (8), which includes a frame (82), the porous component (81) set on the frame (82), and the heating wire (83) wound on the porous component (81). The frame (82) has a run-through hole (821) on it. The porous component (81) is wound with heating wire (83) in the part that is on the side in the axial direction of the run-through hole (821). Ex. 1001-0014, ‘742 Patent, 5:42–49.

Thus, the broadest reasonable interpretation of the term “atomizer” is a “component that converts liquid into aerosol or vapor.” The “atomizer” does not include components that receive the already atomized liquid.

4. OBVIOUSNESS

Even if the prior art is modified as proposed in the Petition to create these limitations, there is still no reasonable likelihood of the claims being found to be unpatentable because the Petition offers no reason to combine the prior art as described in the Petition. Rather the Petition simply states conclusions of obviousness with no articulated reasoning. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 401 (2007). “A patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art.” *Id.* To prove obviousness, Petitioners must show that “there was an apparent reason to combine the known elements in the fashion

claimed by the patent at issue." *Id.* at 418. The analysis "should be made explicit." *Id.* "[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal standard of obviousness." *Id.* at 418 (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

5. THE '742 PATENT FILE HISTORY

The Petition at 13 cites to the First Office Action (Ex. 1010) as supporting the contention that the Examiner determined that "only one limitation was lacking" from Hon '043. Petition at p. 13 (Paper 1). The Examiner's statement of reasons for allowance in Ex. 1010 is:

The Examiner believes that the closest prior art of record, namely the CN 2719043 reference, neither teaches nor reasonably suggests an aerosol electronic cigarette having the claimed combination of structural features, including "an atomizer, which includes a porous component and a heating body; the said heating body is heating wire...the heating wire is wound on the said porous component. Ex. 1010 pp. 2-3.

Among the claimed combination of structural features (in addition to the atomizer) are the frame, the run-through hole, and the part of the porous aligned with the run-through hole. The Examiner did not conclude that "only one limitation was lacking."

Note, Petitioner's references Susa, Liu, and Whittemore were considered during prosecution of the '742 patent. Ex. 1001, cover page.

6. RESPONSE TO GROUND 1: THE PETITION SHOWS NO REASONABLE LIKELIHOOD THAT CLAIMS 1–3 ARE UNPATENTABLE OVER TAKEUCHI.

The Petition (Paper 1) at 19-26 asserts that Takeuchi (Ex. 1003) discloses each of the '742 patent claim elements. For reasons discussed below, Petitioner's assertions are incorrect. Indeed, beginning on p. 27, Petitioner implicitly admits that Takeuchi is deficient concerning the detachable cigarette bottle assembly limitation 1[e] and heating wire limitations 1[h], 1[k] and 1[m].

6.1 Takeuchi Is Missing Numerous Claim 1 Elements

The analysis below refers to the claim element designated 1[a] - 3[f] in the claim charts on pp. 22-26 of the Petition.

6.1.1 Element 1[e]: “cigarette bottle assembly is detachably located in one end of the shell.” The Petition cites Takeuchi at 6:12-14 for this claim element. See Paper 1 at 19 (“[t]he cigarette bottle assembly is detachably located in one end of the shell (source 44 is removable (id. at 6:12-14.) and the atomizer assembly fits inside it.”) In fact, the liquid supply is not removable and instead must be refilled *in situ*. See Takeuchi, Ex. 1003-0012 at 5:28-30 (emphasis added): “[o]n the other hand, the liquid container 32 housing a liquid flavor source 34 is fixed within the lower chamber 122 of the casing 12.” See also Takeuchi, Ex.

1003-0013 at 7:18-30, stating that a “pouring port 58 for replenishing the liquid flavor source 34 is connected to the liquid container 32.”

The passage of Takeuchi at 6:12-14 cited by Petitioner actually relates to the detachable power supply: “[a]n electric power is supplied from a power source 44 detachably mounted within the lower chamber 122 of the casing 12 to the electric heater 42.” Takeuchi thus has no detachable cigarette bottle assembly—a point implicitly conceded by the Petition at 27 (“[t]o the extent Takeuchi may not disclose a cigarette bottle assembly detachably located in one end of a shell....”).

6.1.2 Elements 1[h] and 1[k]: a “heating wire” and a “heating wire...wound on the porous component.” The claim chart at 23-24 (Paper 1) asserts that “heater 425” meets Elements 1[h], 1[k] and 1[m]. But as shown in Figs. 14 and 15 of Takeuchi, Ex. 1003-0009, “heater 425” is a *plate* heater—not a wire—and is not “wound on the porous component.” Rather, it sits on top of the protruded end of pore structure 302. See Ex. 1003-0014 at 10:61-63. In fact, Takeuchi has no heating wire anywhere—another point the Petition implicitly concedes on p. 27 (“[t]o the extent that Takeuchi may not disclose a heating wire wound on a porous component....”). Petitioner provide no explanation or reasoning whatsoever as to how or why one skilled in the art would have modified Takeuchi to include a heating wire wound on a porous component.

6.1.3 Element 1[i]: “the atomizer includes a frame;” Element 1[i]: “the porous component is supported by the frame,” Element 1[l]: “the frame has a run-through hole;” and Element 1[m]: “a heating wire wound on a part of the porous component that is substantially aligned with the run-through hole.”

The ‘742 patent, Ex. 1001-0008 (Figs. 17 & 18) illustrates an atomizer assembly having a frame 82 that supports the porous component 81 and has a run-through hole 821. See the description of this embodiment at Ex. 1001-0014 at 5:42-52.

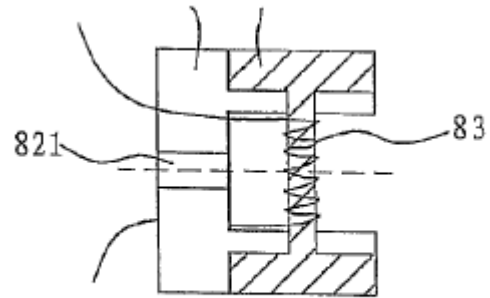


Figure 18

Because Takeuchi does not include a frame that supports a porous component and that has a run-through hole that is substantially aligned with a heating wire wound on the porous component, Petitioner cobbles together various parts of Takeuchi as the alleged frame. But, Takeuchi’s partition wall 13, squeeze plate 24, and casing 12 are not part of the atomizer and do not support a “porous component” as claimed. In fact, none of those distinct parts, together or separate, makes up a frame that supports a porous component, where the frame has a run through hole that is “substantially aligned” with a wire wound around a porous component.

Indeed, after identifying “the frame” in Element 1[i] as the “top wall of casing 12...”, the claim chart (Paper 1) at 23-24 then flip-flops and identifies “the frame” as capillary tube 36 in Element i[j]. But the frame in Element 1[i] is the same frame as in Element 1[j]. So, even assuming the capillary tube 36 is a “frame” as claimed, the capillary tube does not have a run-through hole that is “substantially aligned” with a wire wound around a porous component as claimed.

6.2 Takeuchi Does Not Meet The Elements Of Claim 2.

Claim Element 2[e] recites “the atomizer assembly including a porous component supported by a frame having a run-through hole.” Again, Petitioner asserts that casing 12, partition wall 13, squeeze plate 24 and inhalation port 24 disclose that limitation. Petition, p 25. But, none of these structures support the porous component of Takeuchi. The pore structure of Takeuchi can be “open-cell foamed structure,” or “bundled fibers” which are placed in a capillary tube 36. Column 3: 35-50. The enclosure 301 formed by the walls of capillary tube, or rectangular structure is the frame that supports the pore structure, not the elements that Petitioner recites. Column 10: 50-67, FIG 14 & 15. And, as set forth above, the capillary tube 36 does not meet the requirements of the claimed frame, namely, having a run through hole where a wire wound around a porous component is in the path of airflow through the run-through hole as claimed.

Claim Element 2[f] requires “a heating wire wound on part of the porous component in the path of air flowing through the run-through hole.” The Petition at p. 25 asserts that “heater 425” satisfies this element. As discussed above for claim elements 1[h], 1[k] and 1[m], heater 425 is not a wire, much less a wire wound on part of the porous component in the path of air flowing through the run-through hole. Further, for reasons described in Section 6.1.3, Takeuchi also does not disclose an atomizer having a frame including a porous component and a run-through hole, as required by Element 2[e].

6.3 Takeuchi Does Not Meet The Elements Of Claim 3.

Claim Element 3[e] recites “a heating wire wound on part of the porous component which is substantially aligned with the run-through hole.” The Petition at p. 26 asserts that “heater 425” satisfies Element 3[e] (by reference back to Element 1[m]). As discussed above for claim elements 1[h], 1[k] and 1[m], heater 425 is plainly not a wire, much less a wire wound on part of the porous component which is substantially aligned with the run-through hole. Further, for reasons described in Section 6.1.3, Takeuchi also does not disclose an atomizer assembly including a frame having a run through hole or a porous component between the frame and the outlet, as required by Element 3[d]. As with claims 1 and 2, Petitioner does not explain how or why Takeuchi would be modified to provide such features.

6.4 Conclusion.

Thus, the record does not establish a reasonable likelihood that Petitioner would prevail in establishing that claims 1-3 would have been obvious over Takeuchi.

7. RESPONSE TO GROUND 2: THE PETITION SHOWS NO REASONABLE LIKELIHOOD THAT CLAIMS 1–3 ARE UNPATENTABLE OVER TAKEUCHI IN VIEW OF COX.

7.1 Overview Of Cox

The Petition cites Cox as a secondary reference to cure the deficiencies of Takeuchi. Cox does not relate to electronic cigarettes, however, but rather to aerosol generators used, e.g., to treat respiratory ailments (e.g., inhalers for treating asthma). Cox, Ex. 1004-0009 at 1:7-18 and 1:45-48.

7.2 Petitioner’s Takeuchi-Cox Combination Has Multiple Flaws.

Petitioner relies on Cox to supply only two features to the device of Takeuchi, i.e., a detachable bottle assembly and a heating wire. Petition at 27. For reasons discussed below, Cox fails to provide these two elements. Moreover, there are numerous other missing elements from claims 1-3.

7.2.1 Cox does not disclose a detachable cigarette bottle assembly as required by claim 1.

The Petition asserts that Element 1[e] is met by Cox’s disclosure because it discloses a “first component 23 containing flexible container 45.” See p. 27 (citing Cox, Ex. 1004 at 3:48-60 and Fig 1) and the claim chart on p. 28 (citing Cox, Ex.

1004 at 3:39-63 and Fig. 1). But the lone passage of Cox cited by Petitioner does not mention a detachable bottle assembly. And Petitioner's expert provides no help as he merely repeats the Petition verbatim. Shuster, Ex. 1002-0042, ¶ 129.

In fact, Cox does not disclose that the “flexible container 45” is detachable. Rather, Cox describes a “first component 23” that is detachable from a “second component 25.” Ex. 1004-0010 at 3:61-4:09 and 4:47-51. The first component 23 includes at least five different items, (i) a tube 27, (ii) a heater 33, (iii) a valve 35, (iv) container 45, and (v) a pressurization arrangement 39 for causing the material 37 to be introduced into the tube when the valve is opened. *Id.* The “second component 25” comprises the power source and electronics. *Id.* at 4:10-24. Cox explains that “[a]fter one or a plurality of uses, the first component 23 is preferably separated from the second component 25 and is disposed of, and a new first component is attached to the second component for further use.” *Id.* at 4:47-51.

In sum, Cox has no detachable bottle assembly; rather Cox has a detachable “first component” comprising a liquid source, tube, valve, heating element and pressurization arrangement. Neither Petitioner nor its expert explains why one of ordinary skill would read Cox to provide a separately detachable liquid source, or why or how one of ordinary skill would modify the first component of Cox to provide a separately detachable liquid source.

7.2.2 Petitioner articulates no reasoning with rational underpinnings for modifying Takeuchi by replacing Takeuchi's refillable reservoir with a detachable cigarette bottle assembly.

Petitioner cites no evidence of record explaining *why* one of ordinary skill would want to modify Takeuchi to replace its refillable reservoir with a detachable bottle assembly. And Petitioner's expert again just repeats Petitioner's conclusory assertions verbatim. *See*, Shuster, Ex. 1002-0042, at ¶ 130.

Notably, Petitioner identifies nothing in Takeuchi or Cox suggesting that Takeuchi's refilling design is a drawback or could be improved by replacing it with a detachable assembly. In fact, to the contrary, Takeuchi itself actually touts its ability to be replenished as an *advantage* over "replacing or exchanging the liquid container 32." *See* Takeuchi, Ex. 1003-0013 at 7:27-30 ("However, since the liquid flavor source 34 can be replenished, the flavor-generating device of the present invention can be used continuously without replacing or exchanging the liquid container 32").

Thus, not only has Petitioner failed to point to record evidence suggesting the proposed modification, Petitioner's modification of Takeuchi to provide a detachable bottle assembly actually would deprive Takeuchi of its disclosed advantage.

7.2.3 Petitioner also does not explain how Takeuchi could be modified to replace the refillable reservoir with a detachable cigarette bottle assembly.

Finally, Petitioner offers no explanation of *how* Takeuchi would be structurally modified to replace its refillable reservoir with a detachable bottle assembly. This is not a trivial question, and doubly so if the Cox “first component” comprising the all of the other components (tube, valve, heater and pressurization) were used. Petitioner’s expert is likewise silent on this point. Tellingly, the only figure that Dr. Schuster does provide to illustrate a Takeuchi-Cox combination (relating to a heating wire, discussed below), does not show a detachable bottle assembly. Schuster Decl., Ex. 1002-0043, at ¶133.

In sum, Petitioner’s unsupported, conclusory statements—buttressed verbatim by its expert’s unsupported, conclusory statements—do not constitute articulated reasoning with rational underpinnings as to why or how one of ordinary skill in the art would modify Takeuchi in view of Cox to replace the refillable reservoir of Takeuchi with a detachable bottle assembly. Petitioner’s assertion of obviousness over Takeuchi and Cox is legally insufficient. *KSR Int’l*, 550 U.S. at 418. For the reasons above, the Petition’s proposed combination does not render obvious claim 1 of the ‘742 patent.

7.2.4 Petitioner also articulates no reasoning with rational underpinnings for modifying Takeuchi to include a wound heating wire as required by claims 1-3.

As discussed above in Sections 6.1.3 and 6.1.7, 6.2 and 6.3, claim Elements 1[h], 1[k], 1[m], 2[f], 2[e], 3[e] and 3[d] all require a heating wire or a heating wire wound in a specific configuration on a porous component. Petitioner asserts that it would have been obvious to modify the device of Takeuchi to include winding a heating wire on a porous component in view of Cox. But Petitioner's *entire* analysis for the proposed modification comprises *only one* sentence on p. 27: "[i]t would have been obvious to a person of ordinary skill in the art to ... implement such a heating wire as the heater 425 of Takeuchi because a wound heating wire is straightforward to design and manufacture." Petitioner again cites to the Schuster Declaration, but again Dr. Schuster merely repeats the Petition's conclusory statement verbatim (Schuster, Ex. 1002, at ¶ 133) ("It would have been obvious to a person of ordinary skill in the art to implement such a heating wire as the heater 425 of Takeuchi because a wound heating wire is straightforward to design and manufacture.")

Even if this statement were true—and Petitioner provides no evidence that it is true in the context of a porous component in Takeuchi's device—this generalized statement about wound heating wires does not satisfy the requirement under *KSR Int'l* for some articulated reasoning with rational underpinnings as to

why one of ordinary skill in the art would actually modify the device of Takeuchi to include the wire heater of Cox. Indeed, such reasoning is particularly necessary here given obvious dissimilarity in the components being heated; Takeuchi is heating a porous material and Cox is heating a hollow tube.

Specifically, in Cox, the tube 27 on which the wire heater 33 is provided is hollow—not porous. In fact, Cox’s tube 27 could not be porous or Cox’s device would fail. The operation of the Cox device is described at Ex. 1004-0010, 4:39-51. Upon opening valve 35, an amount of liquid material is ejected into hollow tube 27 by pressurization arrangement 39. The ejected material is heated in the hollow tube, volatilizes and expands out the free end so as to permit the patient to inhale the dispensed medication. *Id.* There is no reason to modify this configuration by including a porous component.

Petitioner’s proposed combination thus takes a heating wire that surrounds a hollow, non-porous tube in Cox that receives liquid being ejected under pressure, and attaches it to a porous material in Takeuchi designed to eliminate the need for receiving liquid ejected under pressure. Given the dissimilarity of the porous material in Takeuchi and the hollow tube in Cox, it is manifestly incumbent upon Petitioner to explain why one of ordinary skill would read the disclosure of Cox and then pick its wire heater to be a replacement for the plate heater of Takeuchi. In this regard, Petitioner points to no statement in Takeuchi or Cox suggesting that

plate heater 425 is in any way deficient or could be improved. In fact, Takeuchi teaches away from the use of pressure to move material for vaporization. See Takeuchi, Ex. 1003-0013 at 1:39-56 (“in each of these prior art articles, it is impossible to release continuously a predetermined suitable amount of aerosol every time a user takes a single puff.”).

In sum, the unsupported, conclusory statements of Petitioner, repeated verbatim by its expert, do not constitute articulated reasoning with rational underpinnings as to why or how one of ordinary skill in the art would replace the plate heater of Takeuchi with the wire heater of Cox. Petitioner’s assertion of obviousness of claims 1-3 over Takeuchi and Cox is thus legally insufficient. *KSR Int’l*, 550 U.S. at 418.

7.2.5 Petitioner’s proposed Takeuchi-Cox combination is also missing numerous other elements of claim 1

As discussed above, Takeuchi also does not disclose: Element 1[i] (“*the atomizer includes a frame*”), Element 1[j] (“*the porous component is supported by the frame*”); Element 1[l] (“*the frame has a run-through hole*”) and Element 1[m]: (“*a heating wire wound on a part of the porous component that is substantially aligned with the run-through hole*”). The Petition does not assert that any of these missing items is supplied by Cox. Given these additional deficiencies, the record does not establish a reasonable likelihood that Petitioner would prevail in

establishing that claim 1 would have been obvious over the combination of Takeuchi and Cox.

7.2.6 The Takeuchi-Cox combination is also missing other elements of Claim 2.

Claim Element 2[e] recites “the atomizer assembly including a porous component supported by a frame having a run-through hole.” As discussed above in Sections 6.1.3 and 6.2, Takeuchi’s device does not possess these features. Petitioner does not rely on Cox as teaching Element 2[e]. See Paper 1 at p. 29 (the claim chart for Elements 2[a]-[e] relies solely on Ground 1, i.e., Takeuchi). Thus the record does not establish a reasonable likelihood that Petitioner would prevail in establishing that claim 2 would have been obvious over Takeuchi and Cox.

Further, claim Element 2[f] recites “a heating wire wound on part of the porous component in the path of air flowing through the run-through hole.” Petitioner relies on Cox to supply this element (Paper 1 at p. 29). For reasons discussed above in Section 7.2.4, it would not have been obvious to employ the wire heater of Cox in Takeuchi. Moreover, Takeuchi does not disclose a porous component in the path of a run-through hole. See Sections 6.1.3-6.1.5 above.

7.2.7 The Takeuchi-Cox combination is also missing other elements of Claim 3

Claim Element 3[d] requires “the atomizer assembly includes a frame having a run through hole, and a porous component between the frame and the

outlet.” As discussed above in Sections 6.1.3-6.1.5 and 6.2, Takeuchi’s device does not possess these features. Petitioner does not rely on Cox as teaching Element 3[d]. See Paper 1 at p. 30 (the claim chart for Elements 3[a]-[d] relies solely on Ground 1, i.e., Takeuchi). Thus, the record does not establish a reasonable likelihood that Petitioner would prevail in establishing that claim 3 would have been obvious over the combination of Takeuchi and Cox.

Further, claim Element 3[e] recites “a heating wire wound on part of the porous component which is substantially aligned with the run-through hole.” Petitioner relies on Cox to supply the heating wire of this claim element. See Paper 1 at p. 30 (Element 3[e] refers back to Element 1[m], which discusses Cox). For reasons discussed above in Section 7.2.4, it would not have been obvious to employ the wire of Cox in Takeuchi’s device. Moreover, Takeuchi does not disclose a porous component substantially aligned with a run-through hole. See Sections 6.1.3 above.

7.3 Conclusion.

As the record does not establish a reasonable likelihood that Petitioner would prevail in establishing that claims 1-3 would have been obvious over the combination of Takeuchi and Cox.

8. RESPONSE TO GROUND 3: THE PETITION SHOWS NO REASONABLE LIKELIHOOD THAT CLAIMS 1 AND 3 ARE UNPATENTABLE OVER BROOKS.

In Ground 3, Petitioner asserts that claims 1 and 3 are rendered obvious by Brooks, Ex. 1005. But Brooks is so different from the device of the ‘742 patent claims that Petitioner must wholesale redesign Brooks (and advance absurdly broad claim constructions) in order to meet the elements of claims 1 and 3. Indeed, one need look no further than Petitioner’s claim charts (pp. 32-35) to see that the cited portions of Brooks do not match the ‘742 patent claim elements. The following are a few of Brooks’ major shortcomings.

8.1 Brooks Has No Heating Wire Wound On A Porous Component.

Brooks’ device is entirely unlike the ‘742 patent devices in that Brooks has no liquid supply that is transmitted via a porous component to a heater where it is converted into aerosol or vapor. Rather, Brooks only has a unitary heating element such as a porous wire that is impregnated with a substance that forms an aerosol upon heating. Brook, Ex. 1005-0013 at 7:26-8:22. Indeed, the Petition implicitly concedes that Brooks does not have a heating wire wound on a porous component:

It would have been obvious to a person of ordinary skill in the art to replace the porous heating wire of Brooks with a separate heating wire and separate porous component as this would allow independent optimization of the ability to hold liquid and the thermal properties. (*Id.* at ¶ 138.) It would have been obvious to wind the heating wire wound around the separate porous component to improve ease of

manufacture, and also to provide more efficient and uniform heating due to greater contact between the porous component and the wire. (*Id.* at ¶ 139.)

Petition at 31-32. Brooks clearly does not satisfy claim 1 Elements 1[h], 1[k], 1[m], and claim 3 Element 3[e], all of which require a heating wire wound on part of the porous component in the ‘742 patent claims.

Petitioner’s proposed modifications, moreover, are clearly the product of hindsight. As usual, Petitioner cites to Dr. Shuster, and Dr. Schuster merely repeats the Petition’s conclusory statements verbatim. Paper 1 at pp. 31-2; Schuster, 1002-0045,46 at ¶¶ 138-9. More fundamentally, the Petition fails to explain *why* one of ordinary skill would have wanted to modify the Brooks device to provide independent optimization or more uniform heating. The reasoning of the Board in the *VMR Decision*, Ex. 2001 at 24-5 is apropos here (emphasis added):

[W]e are not persuaded that Petitioner has articulated reasoning with rational underpinnings as to why one of ordinary skill in the art would modify Hon’s teachings to arrive at the claimed invention based on the asserted reasoning that it would have provided more efficient, uniform heating... Petitioner does not point to other evidence or explanation to support its proposed combination of Hon and Whittemore....

Here, Petitioner points to nothing in Brooks or any other record evidence suggesting either that (i) one of ordinary skill would perceive any need to improve the Brooks device, or (ii) one of ordinary skill with knowledge of the prior art would recognize Petitioner's proposed modification as a solution to meet such needs. Indeed, Petitioner points to nothing in the record to explain its proposal to eliminate Brooks' most-critical component (the impregnated wire heater), and replace it with two separate elements (a porous material and wound wire heater), neither of which independently functions like the impregnated wire.

Petitioner and Dr. Schuster theorize two benefits for this modification, i.e., independent optimization of liquid-holding and thermal properties, and more efficient and uniform heating. Paper 1 at pp. 31-2. But again they point to nothing in Brooks or any other record evidence indicating that sub-optimum liquid-holding/thermal properties or inefficient and non-uniform heating were a problem for Brooks' device. Nor do they point to record evidence that one of ordinary skill would understand from the prior art that Petitioner's proposed modifications would solve such problems. And there is no support for Petitioner's counter-intuitive assertion that winding a separate wire around a separate porous material would provide better heating than simply heating an impregnated wire itself.

In sum, Petitioner points to nothing in the record to indicate that it's proposed combination is anything more than a hindsight solution for a problem that doesn't exist.

8.2 Brooks Has No Detachable Cigarette Bottle Assembly And No Liquid Supply In Contact With The Porous Component.

Brooks has an impregnated wire heater—it has no bottle assembly as required by claim 1 Elements 1[b], 1[e] and 1[n], and no liquid supply that is in contact with the porous component as required by claim Element 3[f]. Concerning the lack of a cigarette bottle assembly, the Petition's claim chart (pp. 32-35) makes this clear by labelling “disposable smoking cartridge 94” as the cigarette bottle assembly. See claim chart element 1[b] on p. 32 of the Petition. But smoking cartridge 94 is not a bottle and contains no liquid. Brooks, Ex. 1005-0015 at 12:3-38. Rather, it contains the heating element and a charge of tobacco. *Id.* Such a component is not a “bottle assembly.”

Brooks also does not have a liquid supply that is in contact with the porous component as required by claim Element 3[f]. The Petition admits this deficiency at p. 32 where it states that “for claim 3, it would it would have been obvious to a person of ordinary skill in the art to extend the porous component of Brooks into a liquid supply, thereby using capillary action to increase the available number of puffs.” But Petitioner's simplistic suggestion—manifestly the product of gross hindsight—overlooks the fact that the only porous component of Brooks is a wire

heater that conducts electricity and heats, and so would not be suitable to extend into the liquid supply. Moreover, Petitioner does not say *how* Brooks would be structurally modified to completely alter its function to include a liquid source or even where that source would be located and how it would supply liquid to the porous component. Clearly, major design changes would be required so as to provide a supply of liquid that does not simply run out when the Brooks device is tilted or turned vertical. At minimum, a separate liquid container apart from the smoking cartridge 94 would have to be provided, together with a mechanism for providing the liquid to the heater, none of which is suggested by Brooks.

Moreover, Petitioner points to nothing in the record that would indicate to one of ordinary skill that that Brooks' devices needed Petitioner's modification to add a liquid source to provide more puffs, as Petitioner suggests at p. 32. Indeed, the opposite is true. Brooks states that its goal is to "provide a smoking article which can provide the sensations of cigarette or pipe smoking." Ex. 1005-0011 at 56-57. Brooks then states that the life of a "typical cigarette" is 6-10 puffs and that the heating elements described in Brooks "carry enough aerosol forming substances to provide aerosol for 6 to 10 puffs, or more." *Id.* at 4:2-6 and 29-31. One of ordinary skill has no motivation to increase the number of puffs in Brooks.

8.3 The Record Does Not Support Petitioner’s Modification Of Brooks Based On Whittemore.

As further support for finding obviousness on the basis of Brooks *alone*, Petitioner points to a two-sentence passage in the background of Brooks that mentions the Whittemore patent. Petition at 32; Schuster, Ex. 1002-0046 at ¶¶ 140-142 (citing Brooks, Ex. 1005-0010 at 1:57-61). Petitioner bootstraps this passing mention of Whittemore into an obviousness attack over the combination of Brooks and Whittemore by suggesting modifications based on features found in Whittemore, i.e., providing a liquid supply as discussed above. *Id.* (“See such liquid contact as described in Whittemore, for example.”)

But again, there is nothing anywhere in the evidence of record suggesting a problem with Brooks for which one of ordinary skill would implement a modification found in Whittemore. (See the full discussion below in conjunction with Ground 4.) Indeed, Brooks expressly discounts Whittemore’s device. The stated purpose of Brooks is to provide “provide a smoking article which can provide the sensations of cigarette or pipe smoking.” Ex. 1005-0011 at 1:56-57. But as Brooks notes about the devices discussed in the background section where Whittemore is discussed, “it is believed that none of the foregoing electrical energy articles [including Whittemore] is capable of providing the user with sensations of cigarette or pipe smoking.” *Id.* at 1:53-55.

8.4 Conclusion.

The record does not establish a reasonable likelihood that Petitioner would prevail in establishing that claims 1 and 3 would have been obvious over Brooks. Further, Petitioner's Ground 3 is limited to obviousness over Brooks, but Petitioner plainly relies on adding elements from Whittemore. Implicit in Petitioner's argument is that Brooks alone does not render obvious claims 1 and 3.

9. RESPONSE TO GROUND 4: NO REASONABLE LIKELIHOOD THAT CLAIMS 1-3 ARE UNPATENTABLE OVER THE COMBINATION OF BROOKS IN VIEW OF WHITTEMORE.

9.1 Whittemore And The Prior *VMR Decision*.

Whittemore (Ex. 1006) is a 1936 patent for an upright vaporizing unit for therapeutic purposes. As noted above, Whittemore was relied on as a secondary reference in two different prior art combinations asserted as grounds of unpatentability against the '742 patent in the prior VMR IPR2015-00859 proceeding. As also noted above, the Board denied institution on all grounds, including the two for which Whittemore was asserted as a secondary reference. The Board at pp. 24-5 of the *VMR Decision*, Ex. 2001, explained why VMR's asserted reason for combining Whittemore was insufficient:

As set forth above with respect to the combinations of Hon and Susa, and Hon and Abhulimen, *we are not persuaded that Petitioner has articulated reasoning with rational underpinnings as to why one of ordinary skill in the art would modify Hon's teachings to arrive at the claimed invention based on the asserted reasoning that it would*

have provided more efficient, uniform heating... Petitioner does not point to other evidence or explanation to support its proposed combination of Hon and Whittemore....

(Emphasis added). Petitioner in this case likewise articulates no reasoning with rational underpinnings and identifies no evidence as to why one of ordinary skill would want modify Brooks to include to features of Whittemore.

9.2 No Reasoning With Rational Underpinnings Why One Of Ordinary Skill Would Modify Brooks To Include A Heater Coil Wrapped Porous Component Of Whittemore Based On Petitioner’s Asserted Reasoning That It Would Permit One To “Independently Optimize The Properties” Of The Heater Coil And Porous Component.

In Ground 4, Petitioner asserts the following sentence as its sole reason for why a person of ordinary skill would seek to modify Brooks with Whittemore to meet the wound heating wire limitation in each of claims 1-3 of the ‘742 patent:

“[i]t would have been obvious to a person of ordinary skill in the art to replace the porous heating wire of Brooks with the heater coil wrapped porous component of Whittemore in order to independently optimize the properties of each.” (See Ground 3 above; Schuster Decl. ¶ 144.)

Petition at 35 (emphasis added). Remarkably, the single sentence above constitutes the entirety of Petitioner’s explanation for why one of ordinary skill would be motivated to combine the porous heating wire of Brooks with the heater coil wrapped porous component of Whittemore. Petitioner essentially repeats the

same reason again at p. 36 (“to independently optimize the properties of each”), and unsurprisingly, Dr. Schuster again repeats the text of the Petition substantially verbatim, adding no further explanation. Schuster, Ex. 1002-0047-49 at ¶¶ 144-6.

Petitioner’s single-sentence reason does refer back to Ground 3 (discussed above) and to Schuster Declaration at ¶ 144, but they merely identify the same reason: “[i]t would have been obvious to a person of ordinary skill in the art to replace the porous heating wire of Brooks with a separate heating wire and separate porous component as this would allow independent optimization of the ability to hold liquid and the thermal properties.” Petition at 31; Schuster, Ex. 1002-0047 at ¶ 144.

Petitioners one-sentence reason is inadequate. Nowhere does Petitioner or Dr. Schuster provide the rational underpinnings for their one-sentence reason. That is, they don’t explain why the ability to optimize such properties would motivate one of ordinary skill to replace the most-critical feature of Brooks (the porous, impregnated heating wire) with a heater coil wrapped porous component of Whittemore. What does one of ordinary skill know about the thermal properties and ability to hold liquid of Brooks’ impregnated heating wire that would cause him/her to replace it with a separate heating wire and separate porous component so that he/she could optimize their properties? Petitioner cites no recognition of a problem or shortcoming in the record concerning the thermal properties or liquid-

holding ability of Brooks' heating wire such that one of ordinary skill would be motivated to replace or improve it. Nor does Petitioner cite any basis in the record to establish that one of ordinary skill would have viewed Whittemore as providing a solution to some problem associated with the thermal properties or liquid-holding ability of Brooks' heating wire. Petitioner articulates none of these things, much less point to actual supporting evidence in the record.

Petitioner's Ground 4 must fail because it's lone sentence fails to explicitly articulate the required reasoning with rational underpinnings. See, *KSR Int'l*, 550 U.S. at 418 (to prove obviousness, one must show that "there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue"). The analysis "should be made explicit." *Id.* "[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal standard of obviousness." *Id.* (quoting *In re Kahn*, 441F.3d 977, 988 (Fed. Cir. 2006)). Petitioner here provides no explicit analysis or rational underpinnings. Indeed, the Board's statement in the *VMR Decision*, Ex. 2001 at p. 25 applies equally here: "Petitioner does not point to other evidence or explanation to support its proposed combination of Hon and Whittemore."

In sum, each of claims 1-3 of the '742 patent require a heating wire wound on a porous component. See claim Elements 1[k], 1[m], 2[f] and 3[e] in Petitioner's claim charts at pp. 37-38. Petitioner relies on Whittemore to supply each of these elements. Its failure to articulate a legally sufficient basis for combining Whittemore means that Ground 4 must fail.

9.3 No Reasoning With Rational Underpinnings Why One Of Ordinary Skill Would Modify Brooks To Include The Liquid Supply Of Whittemore Based On Petitioner's Asserted Reasoning That It Would Increase The Number Of Available Puffs.

Ground 4 also relies on modifying Brooks to add the liquid supply of Whittemore to meet limitations in both of claims 2 and 3. See Elements 2[c], 2[g], and 3[f] in Petitioner's claim charts at pp. 37-39. Petitioner again asserts its one-sentence reason from Ground 3 that "[i]t would have been obvious to a person of ordinary skill in the art to substantially surround the porous component of Brooks with the liquid supply of Whittemore, thereby increasing the number of available puffs." Petition at 36. Dr. Schuster also asserts the very same puff-increasing motivation. Schuster, Ex. 1002-0048 ¶ 146.

As noted above in the discussion of Ground 3, however, Petitioner points to nothing in the record that would suggest to one of ordinary skill that Brooks' device has any problem with the number of puffs or needs to be modified to provide more puffs. Indeed, the opposite is true. Brooks states that its goal is to

“provide a smoking article which can provide the sensations of cigarette or pipe smoking.” Ex. 1005-0011 at 56-57. Brooks then states that the life of a “typical cigarette” is 6-10 puffs and that the heating elements described in Brooks “carry enough aerosol forming substances to provide aerosol for 6 to 10 puffs, *or more*.” *Id.* at 4:2-6 and 29-31 (emphasis added). Brooks thus provides no motivation to increase the number of puffs in Brooks’ devices. Petitioner provides no evidence or explanation to the contrary, and thus it further fails to carry its burden of proving obviousness of claims 2 and 3 on Ground 4.

Moreover, as discussed below, it defies common sense to suggest that if one of ordinary skill actually were motivated to increase the number of puffs that he/she would resort to a feature that includes a liquid when Brooks is not designed to accommodate a liquid. Rather, one would look for solutions that make sense for the non-liquid design of Brooks. Using the liquid design in Brooks would change Brooks’ principle of operation, which weighs against obviousness. *See* MPEP § 2143.01.

9.4 Petitioner’s Rationale And Proposed Modifications To Brooks Are Fundamentally Flawed.

Brooks’ smoking device is clearly designed to not employ a liquid source and indeed it has no ability to practically hold a liquid source. Conversely, Whittemore is designed solely to operate with a large source of liquid to provide extended use. Hence, it defies common sense to suggest that one of ordinary skill

seeking to fix any problem with the non-liquid design of Brooks by incorporating features of Whittemore that rely on the presence of a liquid. This is doubly so since Brooks' device it is designed to be repeatedly handled, picked up, set down, tilted and otherwise manipulated by a user, and Whittemore is designed to be used in a stationary, vertical orientation.

Because the Brooks device is designed to not employ a liquid source, simply adding a bulk fluid source such as that of Whittemore would result in a practically unusable device that would spill liquid every time it is moved, tilted or inverted. Indeed, this point is actually confirmed by the Petitioner's proposed figure on p. 36 of the Petition, which illustrates how Brooks would be modified to add a liquid source ala Whittemore. Tilting the device would cause the liquid to simply pour out.

Thus, the structural modifications required to convert Brooks into a device that practically employs a liquid source is not a trivial exercise, and would require modifications far beyond what are taught by Brooks and Whittemore.

9.5 Conclusion.

There is no motivation to combine any feature of Whittemore's liquid design with Brooks' non-liquid design. Tellingly, Petitioner could not muster even one plausible reason for the combination and instead resorted to vagaries such as "independently optimizing properties." The record does not establish a reasonable

likelihood that Petitioner would prevail in establishing that claims 1-3 would have been obvious over Brooks in view of Whittemore.

10. RESPONSE TO GROUND 5: THE PETITION SHOWS NO REASONABLE LIKELIHOOD THAT CLAIMS 1-3 ARE UNPATENTABLE OVER THE COMBINATION OF LIU IN VIEW OF SUSA.

10.1 The Board Has Previously Determined In IPR2015-00859 That Susa’s “Formed Body 92” Is Not A “Porous Component” Or “A Heating Wire Wound On A Porous Component” Within The Meaning The ‘742 Patent Claims.

Beginning at page 39, Petitioner asserts that claims 1-3 would have been obvious over the combination of Liu in view of Susa. The claim charts at pp. 42-47 of the Petition indicate that Petitioner is relying solely on the disclosure of Susa “formed body 92” to satisfy the ’742 patent claim elements relating to (i) the porous component and (ii) the heating wire wound on a part of the porous component. See specifically Elements 1[g], 1[j], 1[k], 1[m] and 1[n] for claim 1, Elements 2[e], 2[f] and 2[g] for claim 2, and Elements 3[d], 3[e] and 3[f] for claim 3. Petitioner does not rely on Liu for these limitations.

Ground 5 must fail because, as discussed below, the Board previously determined in IPR2015-00859 that, on the evidence presented in that case, Susa’s “formed body 92” is not a “porous component” or “a heating wire wound on a porous component” within the meaning the ’742 patent claims. According to 35 U.S.C. § 325(d):

In determining whether to institute or order a proceeding under this chapter, chapter 30, or chapter 31, the Director may take into account whether, and reject the petition or request because, the same or substantially the same prior art or arguments previously were presented to the Office.

As also discussed below, Petitioner in the case advances no new arguments or evidence that would warrant a different determination in this case, and thus this Ground of unpatentability should be rejected.

In IPR2015-00859, VMR asserted four different grounds of obviousness of claims 1-3 involving Susa, i.e., based on Susa alone and on Susa in combination with any of Hon, Abhulimen or Whittemore. In response, Patent Owner point out that, *inter alia*, Susa has no frame with a run through hole, no porous component in contact with or substantially surrounded by a liquid supply, and no heating wire wound on a porous component. See, IPR2015-00859, Paper 5 (Ex. 2019) at 29-31. And that remains the same here.

In the *VMR Decision*, the Board construed the term “porous component” to mean “a component of the atomizer assembly in the electronic cigarette that includes pores and is permeable to liquid, such as cigarette solution from the cigarette solution storage area.” *VMR Decision*, Ex. 2001 at 8-10. The Board then found that Susa’s “formed body 92” is not a “porous component” or “a heating

wire wound on a porous component” within the meaning of the ‘742 claims as construed.

Petitioner contends that Susa’s formed body 92 “has qualities and functions similar to the porous layer,” but does not explain sufficiently, nor direct us to adequate evidence of record indicating, that a person having ordinary skill in the art would have understood the formed body 92 to include pores and be permeable to liquid....

Susa describes formed body 92 as “a solid material that generates flavor or the like,” that, depending on its size, can have good air permeability, or poor to no air permeability. Ex. 1007 at 14:57–15:2, 15:13–27. The embodiment shown in Susa Figure 13 that shows coil heater 94 disposed around formed body 92 also includes liquid-absorbing porous layer 46 that “is formed on a surface of the ceramic heater 42 that receives the liquid splash of the material” and “stabiliz[es] gasification of the splash of material.” *Id.* at 7:50–8:1. Consequently, we are not persuaded that that formed body 92 in Susa is a “porous component” as recited in the challenged claims, or that Petitioner has demonstrated that Susa teaches a heating wire wound on a porous component, as is required by claims 1–3.

VMR Decision, Ex. 2001 at 18 (emphasis added)

The Board went on to find that none of VMR’s asserted grounds of unpatentability involving Susa established a reasonable likelihood that VMR would prevail in establishing that claims 1–3 of the ’742 patent would have been obvious. *VMR Decision*, Ex. 2001 at 10-18 and 28-31.

10.2 No New Argument Or Evidence That Would Warrant A Different Outcome From The Board's Decision In IPR2015-00859.

In this IPR, Petitioner's arguments do not cure the deficiencies noted above by the Board in the *VMR Decision*, Ex. 2001 at 18. Specifically, Petitioner here advances no "evidence of record indicating, that a person having ordinary skill in the art would have understood the formed body 92 to include pores and be permeable to liquid." Rather, at page 40, Petitioner advances a semantical argument—based on dictionary definitions of the terms "solid" and "permeability"—that Susa's "formed body 92" qualifies as a porous component:

And while Susa discloses "formed body 92" as a solid, that alone does not mean "formed body 92" cannot be porous. Academic Press Dictionary of Science and Technology defines "solid" as having "the greatest tendency to resist forces that would alter its shape," e.g., not a liquid or a gas. (Ex. 1021 at 2030.)

Indeed, Susa discloses "formed body 92" as a component having "good air permeability." (Ex. 1007 at 15:13–17.) Academic Press Dictionary of Science and Technology defines "permeability" as the "capability of a porous substance or membrane to allow a liquid to filter through it." (Ex. 1021 at 1612.) (Schuster Decl. ¶ 151.)

Petitioner's conclusion also hinges on its proffered construction of "porous component" that is so broad as to encompasses gas permeability. Petition at 11-12. For reasons discussed above, Petitioner's construction, however, is not the "broadest reasonable construction in light of the specification of the patent in

which [the claims] appear[],”consistent with 37 C.F.R. § 42.100(b). As the Board previously determined, when construed in light the ‘742 patent specification, the porous component “is permeable to liquid, such as cigarette solution from the cigarette solution storage area.” VMR Decision, Ex. 2001 at 8-10. See also Claim Construction Section above. Note, Petitioner does not rely on Liu for these limitations.

In sum, Petitioner here advances no “evidence of record indicating, that a person having ordinary skill in the art would have understood the formed body 92 to include pores and be permeable to liquid.” As such, the Board should again determine, based on the construction of “porous component” and the evidence of record, that Susa does not disclose “the porous component” or “the heating wire wound on a part of the porous component.”

10.3 Conclusion.

Ground 5 relies on Susa’s “formed body 92” to satisfy the “porous component” and “the heating wire wound on a part of the porous component” limitations in Elements 1[g], 1[j], 1[k], 1[m], 1[n], 2[e], 2[f], 2[g], 3[d], 3[e] and 3[f] for claims 1-3 of the ‘742 patent. Petition at pp. 42-47. Because the Board has already determined that Susa’s “formed body 92” is does not meet the “porous component” and “the heating wire wound on a part of the porous component” elements of the claims 1-3, and because Petitioner here presents no new arguments

or evidence on this issue, the record does not establish a reasonable likelihood that Petitioner would prevail in establishing that claims 1-3 would have been obvious over Liu in view of Susa.

11. RESPONSE TO GROUND 6: THE PETITION SHOWS NO REASONABLE LIKELIHOOD THAT CLAIMS 1-3 ARE UNPATENTABLE AS ANTICIPATED BY SUSA.

Beginning at p. 47, the Petition asserts that claims 1-3 are anticipated by Susa. As with Ground 5, Petitioner's Ground 6 anticipation argument relies on Susa's "formed body 92" to satisfy the "porous component" and "the heating wire wound on a part of the porous component" limitations in Elements 1[g], 1[j], 1[k], 1[m], 1[n], 2[e], 2[f], 2[g], 3[d], 3[e] and 3[f] for claims 1-3 of the '742 patent. See the claim charts at pp. 50-53 of the Petition.

For the reasons discussed above for Ground 5, the Board has already determined that Susa's "formed body 92" is does not meet the "porous component" and "the heating wire wound on a part of the porous component" elements of the claims 1-3. And because Petitioner here presents no new arguments or evidence that Susa's "formed body 92" meets these limitations, the record does not establish a reasonable likelihood that Petitioner would prevail in establishing that claims 1-3 are anticipated by Susa.

Moreover, Susa does not disclose "the porous component also positioned substantially within the cigarette bottle assembly" as recited in claim 1, "the porous

component substantially surrounded by the liquid storage component” as recited in claim 2, or “the porous component in contact with a liquid supply” as recited in claim 3 for at least the reasons set forth above with respect to the proposed combination of Susa. Similarly, Susa does not disclose a frame with a “run-through hole” as required by claims 1, 2, and 3 as set forth below with respect to the combination of Susa.

12. RESPONSE TO GROUND 7: THE PETITION SHOWS NO REASONABLE LIKELIHOOD THAT CLAIM 3 IS UNPATENTABLE AS OBVIOUS OVER SUSA.

12.1 The Proposed Modification

In advancing Ground 7, Petitioner spends barely a page to suggest that it would be obvious to alter Susa’s device of Figures 12 and 13 so as to fundamentally change the function of the “formed body 92” from a solid component that is not permeable to liquid such as cigarette solution, into a component that contains a liquid. Petition at pp. 53-4. In its one-page of discussion, Petitioner points to no evidence in the record that would provide a skilled artisan with some reason to drastically modify Susa as Petitioner suggests. Indeed, as discussed below, no such evidence exists because fundamentally changing formed body 92 from a solid to a liquid would run contrary to the clear intent of Susa and additionally, make no sense whatsoever. Moreover, even if formed body 92 were changed as Petitioner suggests, the resulting device would

still be missing several of the elements of claim 3 including “the porous component in contact with a liquid supply” for at least the reasons set forth above with respect to the proposed combination of Susa with Liu, and a frame with a “run-through hole” as set forth below with respect to the combination of Susa with Whittemore.

12.2 The Embodiments Of Figures 12 & 13, And “Formed Body 92”

Susa specifically designed the device of Figures 12 and 13 to include “formed body 92.” Formed body 92 is the key feature of these two embodiments. In fact, these are the only two embodiments in all of Susa that include formed body 92. Referring to Figure 12, formed body 92 is a solid, air-permeable body designed to be located in the gas flow path of the Susa device. Susa, Ex. 1007-0008-9 at 14:54-15:51. Discussing the Figure 12 embodiment, Susa states that *“[t]he characteristic feature of the flavor generation article of this embodiment resides in that a formed body 92 of a solid material that generates a flavor or the like to be inhaled by the user is detachably disposed in a gas flow path 26 between a ceramic heater 42 and a cooling chamber 52.”* *Id.* at 14:54-15:4 (emphasis added). In other words, the entire goal of the Figure 12 embodiment is to insert the *solid material* “formed body 92” that generates a flavor *into the gas flow path*, where a gas stream can extract flavor from the formed body 92 and then provide it to the user. The formed body must be permeable to air as shown in figure 12 because the formed body completely blocks the path to the air outlet in that

embodiment. The formed body 92 of Figure 13 likewise is intended to be in the gas flow path. *Id.* at 15:47-51. But, in Figure 13 the formed body does not need to be permeable to air because it does not completely block the airflow path. *Susa*, Ex. 1007-0009 at 15:24-28.

Petitioners proposed modification would change formed body 92 from a solid that provides flavor by sitting in gas flow path into a component that contains liquid. *Petition* at p. 53. Petitioner explains that “it would have been obvious to one of ordinary skill to modify *Susa* so that the supply is liquid, therefore meeting the limitation of ‘with the porous component in contact with a liquid supply in the housing’ in claim 2 [*sic* claim 3].” *Id.* Incredibly, Petitioner’s reason for the modification appears to be that doing so would alter *Susa* such that, in Petitioner’s view at least, the modified device could meet all of the limitations of the ‘742 patent claim 3. On page 54, Petitioner adds that “[i]f ‘formed body 92’ is formed of solid tobacco components, they cannot diffuse to the surface to replace the tobacco components previously vaporized. Therefore, as explained in Ground 6, the obvious choice would be to have formed body 92 contain and therefore be in contact with tobacco components which are in a liquid state as disclosed in the other *Susa* embodiments. (Schuster Decl. ¶ 168.)”

12.3 Petitioner's Proposed Modification Is Flawed.

Petitioner's proposed modification has numerous flaws. First, Petitioner identifies nothing in the record that explains *why* one of ordinary skill would be motivated to change formed body 92 from a solid to a liquid-containing body. Nor does Petitioner identify anything in the record that indicates that there is any kind of problem with the device of Figures 12 and 13 that would warrant replacing *the key feature* of the Figure 12 and 13 devices, i.e., the solid, formed body 92, with a liquid containing component. On page 54, Petitioner spends one sentence speculating about a problem that might occur "[i]f 'formed body 92' is made from tobacco components." But, Petitioner points to nothing in the record indicating that any such problem exists, or that formed body 92 can even be made from solid tobacco components. And in fact, Susa nowhere states that formed body 92 can be made from solid tobacco components. Susa states that the formed body 92 may contain a flavor material such as a tobacco extracted component or tobacco smoke condensate, but does not state that formed body 92 can be formed from solid tobacco components. The potential problem that might occur "[i]f 'formed body 92' is made from tobacco components" is simply imaginary. In sum, Petitioner articulates no reason for making the modification beyond the fact that it would aid Petitioner's invalidity attack on the '742 patent.

Second, Petitioner's modification would completely destroy the entire purpose and function for which the embodiments of Figures 12 and 13 were created in the first place, i.e., to insert the solid "formed body 92" *into the gas flow path*, where a gas stream can extract flavor from the formed body 92. Changing solid body 92 to a liquid-containing body literally would rob Figures 12 and 13 of their *raison d'être*, i.e., the inclusion of solid body 92 in the gas flow stream to provide flavor to the user. Changing the basic principles under which the devices of Figures 12 and 13 were designed to operate is the antithesis of an obvious modification. *See, In re Ratti*, 270 F.2d 810, 813 (CCPA 1959) (obviousness rejection not proper when modification requires substantial redesign and changes the basic principles under which the prior art reference was designed to operate).

Third, there's nothing in the record to indicate why a person of ordinary skill would want to change Susa's embodiments of Figures 12 and 13 to add yet a *second liquid supply*. Changing formed body 92 from a solid into a liquid supply would leave each of those embodiments with *two liquid supplies*, i.e., liquid material 36 in container 32, and also liquid in formed body 92. Petitioner points to nothing in the record that would motivate one of ordinary skill to want to create a smoking device with two liquid supplies, and indeed it is nonsensical.

Lastly, even if Petitioner's proposed modification were made, the device still would not meet all of the claim elements of claim 3. The support member 44 in

Susa supports the discharge head 34 and the ceramic heater 42. The support member 44 has no run-through hole, as the slit or opening is between the discharge head 34 and the ceramic heater 42. Specifically, Element 3[d] and 3[e] require an atomizer assembly that includes a frame having a run through hole. But Susa has no run through hole. With or without Petitioner's proposed modification, therefore, Elements 3[d] and 3[e] are missing from Susa's device.

12.1 Conclusion.

Petitioner's points to no support in the record for why a person of ordinary skill would be motivated to modify Susa to change the formed body from a solid to a liquid supply. Petitioner identifies nothing in the record to indicate that formed body 92 has any problems that would warrant a complete change as to its design and function, much less create a device with two separate liquid supplies. Indeed, Petitioner's proposed change completely destroys the entire purpose and function for which the embodiments of Figures 12 and 13 were created, i.e., to insert the solid "formed body 92" *into the gas flow path*, where a gas stream can extract flavor from the formed body 92. And even with Petitioner's proposed modification, the Susa device is still missing the frame and run through hole required by claim 3. For the above reasons, the record does not establish a reasonable likelihood that Petitioner would prevail in establishing that claims 3 is obvious over Susa.

13. RESPONSE TO GROUND 8: THE PETITION SHOWS NO REASONABLE LIKELIHOOD THAT CLAIMS 1-3 ARE UNPATENTABLE OVER THE COMBINATION OF SUSA IN VIEW OF WHITTEMORE.

Petitioner's repeats the same final ground of unpatentability as raised in the VMR IPR, namely that claims 1-3 would have been obvious over Susa in view of Whittemore. The Board rejected this combination:

As set forth above with respect to Susa, we are not persuaded that Petitioner articulated reasoning with rational underpinnings as to why one of ordinary skill in the art would modify Susa's teachings to arrive at the claimed invention based on the asserted reasoning that it would have provided more efficient, uniform heating... Petitioner does not point to other evidence or explanation to support its proposed combination of Susa and Whittemore.

VMR Decision (Ex. 2001) at pp. 30-31.

As in the *VMR Decision*, Petitioner here points to no evidence of record to support its combination. Accordingly, the Board should reject this identical combination again.

13.1 Elements Missing From Combination Of Susa And Whittemore

Neither of Susa or Whittemore discloses any of the following features:

A. "a heating wire wound on a part of the porous component that is substantially aligned with the run-through hole" as in claims 1 and 3;

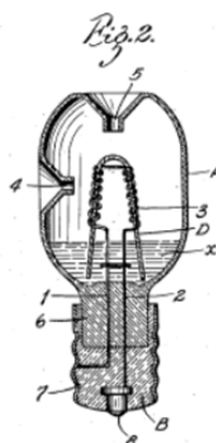
B. “a heating wire wound on a part of the porous component in the path of air flowing through the run-through hole” as in claim 2;

C. a frame having “a run-through hole”, as in claims 1–3, or a “porous component supported by a frame having a run-through hole” as in claims 1 and 2.

Hence, even if Susa and Whittemore were combined, none of the above elements would be present. And in fact, this point is borne out in the figures provided by Petitioner to illustrate the combination, discussed below.

13.2 Whittemore Is Not Reasonably Combined With Susa

Whittemore is not reasonably combined with Susa, even conceptually, because the combination would be non-functional. As shown in Figure 2, below, Whittemore can only be operated in an upright manner (vertically oriented manner) otherwise the medicament would empty out of orifice 4 or outlet 5. Because Susa is meant to be used vertically and in any orientation, the combination would be non-functional.



Susa discloses a piezoelectric element (discharge head 34) that is used to provide small droplets of liquid to a ceramic heater 42 that is spaced apart from

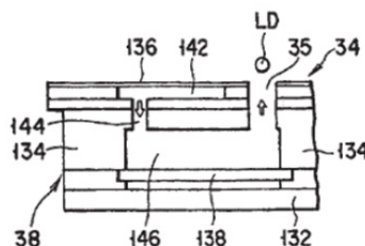
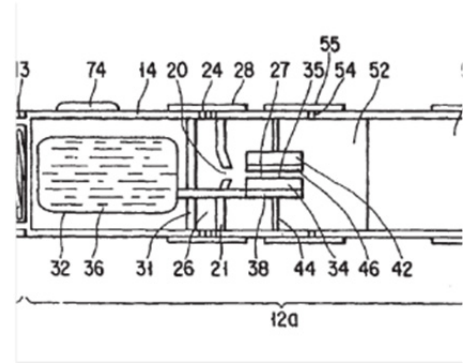


FIG. 3

that discharge head 34. Specifically, *Susa* discloses a discharge head 34 that ejects liquid droplets through discharge port 35 as shown in Figure 3, left. *Susa*, Ex.

1007-0004 at 6:35.

In every embodiment of Susa, those droplets are ejected toward a ceramic heater 42 that is spaced apart from the ejection port 35 as shown in, for example, the portion of Figure 1 of Susa, right. In every embodiment, therefore, Susa discharges liquid particles to a spaced apart electric heater. In contrast, in Whittemore, the wick D is in direct contact with the heating element 3, as it must be to transport liquid to the heating element 3.



The discharge head 34 in Susa controls release of the liquid material 36 from the material container 32 and provides measured ejection of the liquid material 36. Neither of these functions are provided if Susa's discharge head 34 is replaced by the wick of Whittemore. For these reasons, one skilled in the art would not replace Susa's discharge head 34 with Whittemore's wick.

13.3 Petitioner's Proposed Combinations Redesign The Device Of Susa Figure 13 And Change Susa's Basic Operating Principles.

Petitioner proposes two alternative combinations of Susa and Whittemore, and each requires wholesale changes to Susa, neither of which is suggested by the record. Both combinations destroy the fundamental design and operation of Susa.

The first combination (from page 55 of the petition) changes Susa by: eliminating piezoelectric discharge head that provides droplets to ceramic heater;

eliminating ceramic heater 42 used to heat the liquid 36; eliminating solid formed body 92 in the gas flow stream to provide flavor; and providing liquid to new porous component via wick, and heating liquid by the formed body heater. Petitioner's second combination (from page 56 of the petition) changes Susa by: eliminating piezoelectric discharge head 34 that provides droplets to ceramic heater 42; eliminating ceramic heater 42 used to heat the liquid 36; eliminating solid formed body 92 in the gas flow stream to provide flavor; and eliminating formed body heater 94 and instead heating liquid by Whittemore wire heater.

Petitioner's combinations thus wholesale re-designs Susa Figure 13, eliminating all of Susa's key components and destroying every principle by which Susa Figure 13 operates—*especially* given that Susa's entire reason for the Figure 13 device was to provide a solid formed body 92 in the gas flow stream to provide flavor to the user. That formed body 92 is now wiped out by Petitioner's re-design. Petitioner's second combination (Petition at p. 56) is equally egregious. It replaces all of the same elements as the first and then even adds Whittemore's heating wire and filament. Such wholesale design cannot possibly square with the principles of obviousness. *In re Ratti*, 270 F.2d 810, 813 (CCPA 1959).

13.4 There Is No Basis In The Evidence Of Record For Petitioner's Alleged Motivations To Modify Susa.

Petitioner theorizes two motivations for the first combination, and Dr. Schuster again concurs nearly verbatim. First, the combination device could be

used longer before replenishing. Second, the wick would prevent splashing, loss of liquid and inconsistent vaporization. But these speculative motivations are purely *ipse dixit*. Petitioner points to nothing in Susa that suggests there is a problem of short replenishment intervals. Nor does Petitioner explain why the exact same volume of liquid 36 would last longer in Petitioner's design than in Susa's original Figure 13 design. Petitioner points to no evidence to support the notion that a wick design would provide a longer use interval than Susa's original design. Likewise, Petitioner points to nothing in Susa or anywhere else in points to nothing in Susa that suggests that the design of Figure 13 needs to run longer before replenishing.

Likewise, Petitioner points to nothing in the record to suggest that one of ordinary skill would recognize Figure 13 as having any problem of splashing, loss of liquid or inconsistent vaporization. Likewise, Petitioner points to nothing to but points to nothing in the evidence that suggests that using a wick would be solution to any such problems. Again, Petitioners motivations are purely imaginary, concocted solely to justify its gross changes based solely on hindsight.

13.5 Petitioner's Reconstruction Of Susa Does Not Produce A Combination That Meets All Of The Elements Of The '742 Patent Claims 1-3.

Despite Petitioner's major reconstruction of Susa, the result still does not meet all of the claim limitations of the '742 patent claims 1-3. Petitioner's two proposed combinations are still missing (i) "a heating wire wound on a part of the

porous component that is substantially aligned with the run-through hole” as required by claims 1 and 3, (ii) “a heating wire wound on a part of the porous component in the path of air flowing through the run-through hole” as required by claim 2, (iii) “a run-through hole” as required in claims 1–3, and (iv) a “porous component supported by a frame having a run-through hole” as required in claims 1 and 2. None of these claim elements are present in either re-design.

13.6 Conclusion.

Petitioner’s massive re-designs completely destroys the entire purpose and function for which the embodiment of Figure 13 was created, i.e., to insert the solid “formed body 92” *into the gas flow path*, where a gas stream can extract flavor from the formed body 92. And even with Petitioner’s major reconstruction of Susa, the resulting device is still missing numerous claim elements of claims 1-3. For all of these reasons, the record does not establish a reasonable likelihood that Petitioner would prevail in establishing that claims 3 is obvious over Susa in view of Whittemore.

14. CONCLUSION

The Petition fails to demonstrate a reasonable likelihood that the petitioner would prevail with respect to any claim of the ‘742 patent. The Petition is also barred by § 315(b). Accordingly, Institution of Inter Partes Review of any claim of the ‘742 patent should be denied.

Respectfully submitted,

Date: November 2, 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
M Wise@PerkinsCoie.com
Counsel for Patent Owner

CERTIFICATE OF SERVICE

The undersigned hereby certifies that a copy of this **PATENT OWNER'S PRELIMINARY RESPONSE TO PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,365,742** has been served via electronic mail upon the following counsel of record for Petitioner on November 2, 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-IPRService@nortonrosefulbright.com

/ Amy Candeloro /
Amy Candeloro
Paralegal
Perkins Coie LLP