

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

R.J. REYNOLDS VAPOR COMPANY,
Petitioner,

v.

FONTEM HOLDINGS 1 B.V.,
Patent Owner.

Case **IPR2016-01692**
Patent No. **9,326,548**

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

TABLE OF CONTENTS

I.	INTRODUCTION	1
II.	BACKGROUND	3
A.	The '548 Patent	3
III.	THE PETITION SHOULD BE DENIED UNDER 35 U.S.C. § 325(d).....	5
IV.	CLAIM CONSTRUCTION	11
V.	THE PETITION DOES NOT DEMONSTRATE A REASONABLE LIKELIHOOD THAT THE CLAIMS ARE UNPATENTABLE	12
A.	Overview Of Hon '043	12
B.	Overview Of Whittemore.....	14
C.	The Petition Lacks A Motivation To Combine The Prior Art	15
D.	The Proposed Modification Changes The Principal Of Operation Of Hon '043	23
VI.	EXAMINATION HISTORY OF THE '548 PATENT.....	25
A.	Examination Of The '548 Patent.....	26
B.	Examination Of Application 13/740,011	27
C.	Examination Of The '742 Patent (Application 13/079,937).....	27
VI.	CONCLUSION.....	29
	CERTIFICATE OF COMPLIANCE.....	30

TABLE OF AUTHORITIES

CASES

<i>Arista Networks v. Cisco Systems, Inc.</i> , IPR 2015-01710, 2016 WL 1083023 (Feb. 16, 2016).....	10
<i>Dominion Dealer Solutions, LLC v. Autoalert, Inc.</i> , Case IPR2013-00220, Decision on Request for Rehearing, Paper 13, 10 October 2013 (Ex. 2004)	9
<i>KSR Int’l Co. v. Teleflex Inc.</i> , 550 U.S. 398 (2007).....	2, 9

STATUTES

35 U.S.C. § 314(a)	2
35 U.S.C. § 325(d)	2, 5, 10

OTHER AUTHORITIES

MPEP 2143.01 VI.....	25
----------------------	----

LIST OF EXHIBITS

Petitioner's Exhibits	
Exhibit	Description
Ex. 1001	U.S. Pat. No. 9,326,548 to Lik Hon
Ex. 1002	Chinese Pat. No. 2719043Y to Lik Hon
Ex. 1003	Certified English translation of Chinese Pat. No. 2719043Y to Lik Hon
Ex. 1004	U.S. Pat. No. 2,057,353 to C. L. Whittemore, Jr
Ex. 1005	WO 2005/099494, which is the PCT application equivalent of Hon (CN 2719043Y) (“Hon ’494”)
Ex. 1006	Certified English translation of WO 2005/099494 pursuant to 37 C.F.R. 42.63(b)
Ex. 1007	Application Data Sheet and Specification of U.S. Pat. Appl. No. 14/244,376 Filed April 3, 2014
Ex. 1008	Non-Final Office Action of September 4, 2014 in 14/244,376
Ex. 1009	Compilation of prosecution papers filed in 14/244,376
Ex. 1010	Non-Final Office Action of August 20, 2015 in 14/244,376
Ex. 1011	Amendment of November 20, 2015 in 14/244,376
Ex. 1012	Notice of Allowance of March 15, 2016 in 14/244,376
Ex. 1013	Board’s Decision Denying Institution in IPR2015-00859
Ex. 1014	Board's Order Dismissing Petition IPR2015-01587
Ex. 1015	Declaration of Dr. Robert Sturges
Ex. 1016	Rohsenow, “Heat, Mass, And Momentum Transfer”
Ex. 1017	Merriam-Webster Definition of “Set”

Ex. 1018	U.S. Pat. No. 6,155,268 to Takeuchi
Ex. 1019	U.S. Pat. No. 4,947,874 to Brooks et al.
Ex. 1020	U.S. Pat. No. 4,629,665 to Matsuo
Ex. 1021	U.S. Pat. No. 5,894,841 to Voges
Ex. 1022	U.S. Pat. Pub. No. 2005/0016550 to Katase
Ex. 1023	U.S. Pat. No. 5,703,633 to Gehrer et al.
Ex. 1024	IPR2014-01300, Paper No. 8
Patent Owner's Exhibits	
Exhibit	Description
Ex. 2001	Declaration of Richard Meyst (“Meyst Decl.”)
Ex. 2002	U.S. Patent No. 8,365,742 to Hon
Ex. 2003	<i>VMR Products LLC v. Fontem Holdings I B.V.</i> , IPR2015-00859, Paper 2, Petition for <i>Inter Partes</i> Review of 8,365,742, March 10, 2015
Ex. 2004	<i>Dominion Dealers Solutions, LLC v. Autoalert, Inc.</i> , IPR2013-00220, Paper 13, Decision on Request for Rehearing, October 10, 2013
Ex. 2005	<i>Nu Mark LLC v. Fontem Holdings I B.V.</i> , IPR2017-00204, Paper 1, Petition for <i>Inter Partes</i> Review of 9,326,548, November 4, 2016
Ex. 2006	Examiner Interview Summary of 12/01/2015 interview with Examiner Mayes and Supervisory Examiner Wilson in U.S. Patent Application No. 14/244,376 issued as U.S. Patent No. 9,326,548 B2
Ex. 2007	Statement of Related Applications filed 01/13/2016 in U.S. Patent Application No. 14/244,376
Ex. 2008	Notice of Allowance in U.S. Patent Application No. 14/244,376 dated 03/15/2016

Ex. 2009	Statement of Related Applications filed 12/22/2015 in U.S. Patent Application No. 13/740,011
Ex. 2010	Notice of Allowance in U.S. Patent Application No. 13/740,011 dated 06/21/2016
Ex. 2011	Office Action in U.S. Patent Application No. 13/079,937 dated 07/19/2012
Ex. 2012	Examiner Interview Summary in U.S. Patent Application No. 13/079,937 dated 08/23/2012
Ex. 2013	U.S. Patent No. 1,775,947 to Robinson
Ex. 2014	U.S. Patent No. 5,144,962 to Counts
Ex. 2015	EP 0 845 220 B1 to Susa

I. INTRODUCTION

In the sole ground Petitioner asserts that claims 1–14 of U.S. Patent No. 9,326,548 (“the ’548 Patent”) are obvious over the combination of two references, Hon ’043 and Whittemore. Specifically, Petitioner asserts that the claim limitations “the heating wire coil wound on the porous component” (claim 1), “a heating wire coil wound on the first section of the porous component” (claim 8), and “heating wire coil wound on the fiber member” (claim 11) are obvious because one skilled in the art would have been motivated to make the proposed combination. Petitioner’s purported motivation for the combination is that “the porous wick/heating coil wire configuration of Whittemore provides more efficient heating than the arrangement disclosed in Hon ’043.” Petition p. 30.

But, that same combination and motivation have already been rejected by the Board in a previous IPR. The result should be no different here. The ’548 patent is a continuation of U.S. Patent No. 8,365,742 (“the ’742 patent”, Ex. 2002). In IPR2015-00859, another petitioner asserted that the ’742 patent’s claim limitation “the heating wire coil wound on a part of the porous component” was obvious over Hon ’043¹ and Whittemore. Ex. 2003 pp. 34-36. Just like here, in IPR2015-00859 the petitioner asserted “that a person having ordinary skill in the art would have been motivated ‘to wind the coil heater of Whittemore around the

¹ IPR2015-00859 refers to Hon ’494 (Ex. 1005) which is the PCT equivalent of Hon ’043 (Ex. 1002) asserted here.

porous layer in Hon' to provide more efficient, uniform heating.” Ex. 1013 at 24 (citations omitted). The Board disagreed: “[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.” Ex. 1013, pp. 24-25.

Petitioner purports to present additional rationales, other than more efficient heating, for modifying Hon '043 in view of Whittemore. Petition at 6-7. But, the additional rationales provided simply list the exemplary rationales articulated *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398 (2007) without explanation of how those rationales apply to the proposed combination here. Petition at 27-30. Such conclusory motivation is not sufficient to meet Petitioner's burden.

Accordingly, Patent owner requests that the Petition be denied under 35 U.S.C. § 314(a) because the Petition fails 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,” and under 35 U.S.C. § 325(d) because the proposed combination relied upon in the present Petition has already been rejected by the Board in a previous IPR.

II. BACKGROUND

A. The '548 Patent

The '548 Patent generally relates to an “aerosol electronic cigarette.” Ex. 1001, Title. The '548 Patent explains that the disclosed device can provide nicotine, without depriving the user of the “smoking habit,” meaning a user uses the device like a traditional cigarette so that the device simulates the feel and experience of smoking. Ex. 1001 at 1:18-34. The problem to be solved is not just in the ability to efficiently deliver nicotine like the nicotine patch or gum. The rituals of the smoking must be provided. Ex. 2001, ¶ 14.

One of the problems the '548 Patent addresses in prior art electronic cigarettes is the lack of atomizing efficiency: “The electronic cigarettes currently available on the market . . . are complicated in structure. They don't provide the ideal aerosol effects, and their atomizing efficiency is not high.” Ex. 1001 at 1:35-38. The '548 Patent focuses on this problem by addressing how air flows through an electronic cigarette in combination with how liquid contacts a heater to be vaporized. Ex. 2001, ¶ 11.

Air flow is a key concept in the '548 Patent. The resistance to air flow through the electronic cigarette during inhalation should generally simulate that of a real tobacco cigarette. If the air flow resistance is too high, the user's inhalation effort will be unduly high and the air flow rate through the e-cigarette (which

entrains the nicotine vapor) will be too low. On the other hand, if the air flow resistance is too low, the user will inhale excessive air and the air flow rate will be too high. In either case, the ratio of air to atomized liquid will cause a user to inhale too much air and not enough atomized liquid or vice versa. Ex. 2001, ¶ 12.

In one embodiment, the '548 Patent discloses an improved atomizer configuration that addresses both airflow and vaporization. The '548 Patent states: “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 at 5:62-6:1 .

That embodiment is shown in Figures 17 and 18 (reproduced below), showing the air flow path through the run-through hole 821 in the frame 82, and a heating wire 83 wound on the porous component 81.

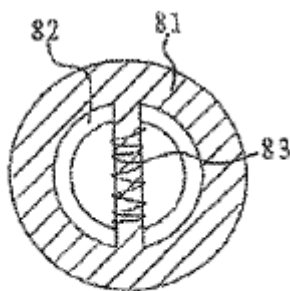


Figure 17

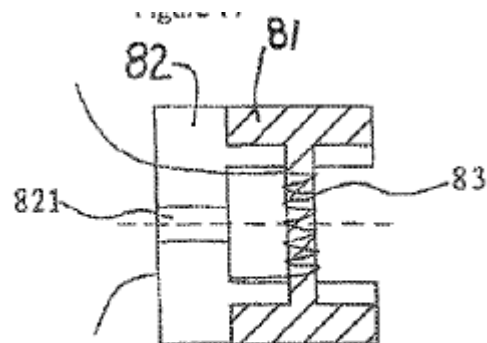


Figure 18

In the embodiment shown in Figures 17 and 18, air flows into the atomizer through the run-through hole 821 and is directed to the heating wire 83 as the heating wire is in the airflow path. These design elements help to improve the aerosol effects and atomizing efficiency of the claimed electronic cigarette. Ex. 2001, ¶ 19.

The '548 Patent claims recite an atomizer according to the above embodiments. Claims 1 and 8 require “a frame” having a “run-through hole” and “a heating wire coil wound on ... the porous component.” Claim 11 includes “a frame comprising a cylindrical base having a run-through hole”, and “a heating wire coil wound on the fiber member.”

III. THE PETITION SHOULD BE DENIED UNDER 35 U.S.C. § 325(d)

The '548 patent is a continuation of the '742 patent, Ex. 2002. While the scope of the claims of the '548 and '742 patents is different, the '548 Patent shares some key limitations at issue in the Petition in common with the claims of the '742 patent.

In IPR2015-00859 filed by another petitioner, the Petition (Ex. 2003) asserted that the claims of the '742 patent were obvious over Hon '043 (Ex. 1002) and Whittemore (Ex. 1004). The combination of Hon '043 and Whittemore is the also the entire basis of the present Petition.

In denying the petition in IPR2015-00859, the Board found there was no motivation demonstrated to wind the coil heater of Whittemore around a porous component of Hon '043. Ex. 1013, p. 24.

Like in that IPR, here claim 1 of the '548 patent recites “the heating wire coil wound on the porous component.” Similarly, claim 8 recites “a heating wire coil wound on the first section of the porous component.” And, claim 11 recites “a heating wire coil wound on the fiber member.”

Just like in IPR2015-00859, the Petition here asserts that each of the '548 patent's independent claims 1, 8 and 11 is invalid based on modifying Hon '043 to include the coil heater of Whittemore. The Petition asserts the following as motivation for making this modification:

As the PHOSITA would have readily appreciated, the porous wick/heating coil wire configuration of Whittemore provides more efficient heating than the arrangement disclosed in Hon '043.

Petition p. 30.

But, in the Decision denying the petition in IPR2015-00859, the Board found that same motivation of “more efficient heating” was insufficient to demonstrate motivation for modifying Hon '043 to include the coil heater of Whittemore. Specifically, the Board wrote:

Petitioner contends that Whittemore teaches “a heating wire wound on a part of the porous component” because “[a]ccording to

Whittemore, the vaporizing unit is combined with the ‘heating element or filament 3’ in such a way that ‘a portion of said wick is always in contact or approximate contact with the heating element or filament 3’ whereby the ‘medicament will be carried by capillary action to a point where it will be vaporized by the heat from filament 3.’ Pet. 35 (citing Ex. 1002 ¶ 88; Ex. 1013, 1:50–2:8 and Fig. 2). Petitioner contends that a person having ordinary skill in the art would have been motivated "to wind the coil heater of Whittemore around the porous layer in Hon" to provide more efficient, uniform heating. Id. at 36.

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.

Ex. 1013, pp. 24-25.

In addition to the same motivation rejected in the previous IPR, the present Petition also relies “if necessary” on Voges and Gehrler in combination with Hon ’043 and Whittemore. The Petition does not argue that Voges and Gehrler are relevant to the content of, or motivation to combine, Hon ’043 and Whittemore. Instead, the Petition relies on Voges and Gehrler for other limitations. First, the Petition relies, “if necessary”, on Voges as disclosing a cylindrical battery and

housing. Petition pp. 24, 33, 34, 36, 37 and 39. The Petition explains how Voges is relied on as follows:

However, to the extent the Patent Owner argues to the contrary, or the Board otherwise determines that there is any ambiguity about whether the housing and battery of Hon '043 are "cylindrical," it nonetheless would have been obvious to modify Hon '043 to include a cylindrical housing to mimic the shape of a conventional cigarette as taught by Voges.

Petition p. 33. Whether Voges discloses a cylindrical battery and housing does not remedy, or even relate to, the lack of motivation for modifying Hon '043 to include the coil heater of Whittemore.

Second, the Petition relies on Gehrer as disclosing a liquid reservoir having fibers. Petition pp. 26, 74, 75 and 77. Again, whether Gehrer discloses a liquid reservoir having fibers does not remedy, or even relate to, the lack of motivation for modifying Hon '043 to include the coil heater of Whittemore.

The Petition at 6-7 discusses IPR2015-00859 but makes no argument that the addition of Voges and Gehrer changes any of the reasoning in the Decision concerning the modification of Hon '043 in view of Whittemore. Indeed, the conditional addition of Voges and Gehrer to the present Petition does not affect the reasoning and conclusion in IPR2015-00859 or prevent its application to the present Petition.

At pages 6-7, the Petition purports to present additional rationales, other than more efficient heating, for modifying Hon '043 in view of Whittemore. However, the additional rationales simply list unsupported conclusions repeating the exemplary rationales of *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398 (2007). Petition at 27-30. Specifically, the Petition covers five of the exemplary rationales of *KSR* (known methods to yield predictable result; simple substitution to obtain predictable result; using a known technique to improve a similar device; applying a known technique to a known device ready for improvement; and obvious to try) in little more than three pages, with no discussion as to how these exemplary rationales apply to the claims and prior art. But, “[w]ith regard to the obviousness grounds of unpatentability, general principles on what may constitute a supporting rationale cannot substitute for specific application of those principles to the facts.” *Dominion Dealer Solutions, LLC v. Autoalert, Inc.*, Case IPR2013-00220, Decision on Request for Rehearing, Paper 13, 10 October 2013, Ex. 2004, p. 4. As such, “rejections 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 conclusion of obviousness.” *KSR*, 550 U.S. at 418, citing *In Re Kahn*, 441 F.3d. 977, 988 (C.A. Fed. 2006).

In IPR2015-00859, the Board found no motivation to modify Hon '043 to include the coil heater of Whittemore, to result in a heating wire coil wound on a

porous component (as in claims 1 and 8 of the '548 patent) or a heating wire coil wound on the fiber member (as in claim 11 of the '548 patent). Here, the Petitioner makes the same arguments based on the same references. It is therefore appropriate for the Board to exercise its discretion and refuse to institute a trial under 35 U.S.C. 325(d).

In pertinent part, 35 U.S.C. § 325(d) provides:

“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.”

In *Arista Networks v. Cisco Systems, Inc.*, the Board denied a petition under 35 U.S.C. § 325(d) in part because “[a]llowing similar, serial challenges to the same patent, by the same petitioner, risks harassment of patent owners and frustration of Congress’s intent in enacting the Leahy-Smith America Invents Act.” IPR2015-01710, 2016 WL 1083023, at *5 (Feb. 16, 2016). The same reasoning should apply even if the Petitioner is different. Otherwise, a subsequent Petitioner can simply recycle the same losing petition to harass a patent owner.

Indeed, the harassment here is real and ongoing. As described in footnote 1 of the Petition, the Petitioner filed IPR2016-01268 on July 2, 2016 against the '742 patent asserting the same combination of Hon '043 and Whittemore,

notwithstanding the Board's rejection of this argument in IPR2015-00859. On November 4, 2016 yet another Petition was filed (by another party, Nu Mark LLC) against the '548 patent (IPR2017-00204), again asserting the identical combination of Hon '043 and Whittemore. Ex. 2005, p. 14.

Moreover, as set forth in section VI.A below, Patent owner submitted the arguments made in IPR2015-00859 regarding the combination of Hon '043 and Whittemore to the Patent Office during prosecution of the '548 patent and the examiner allowed the current claims over that combination.

Accordingly, Petitioner's assertion of the same or substantially the same prior art or arguments regarding the combination of Hon '043 and Whittemore previously presented to and rejected by the Office should be rejected again here.

IV. CLAIM CONSTRUCTION

In IPR2015-00859 the Board construed "frame" to mean "a rigid structure" and construed "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. 1013 at 7-8. Patent Owner disagrees with those constructions for "frame" and "porous component." But, because those constructions are not relevant to this response, Patent Owner does not dispute those construction here. Patent Owner reserves its right to dispute those constructions if the IPR is instituted.

**V. THE PETITION DOES NOT DEMONSTRATE A REASONABLE
LIKELIHOOD THAT THE CLAIMS ARE UNPATENTABLE**

A. Overview Of Hon '043

In IPR2015-00859, the Board provided the following overview of Hon '043:

1. Overview of Hon

Hon is directed to an electronic atomization cigarette. Ex. 1007,
1:4-5. Figures 1 and 6 of Hon are reproduced below:

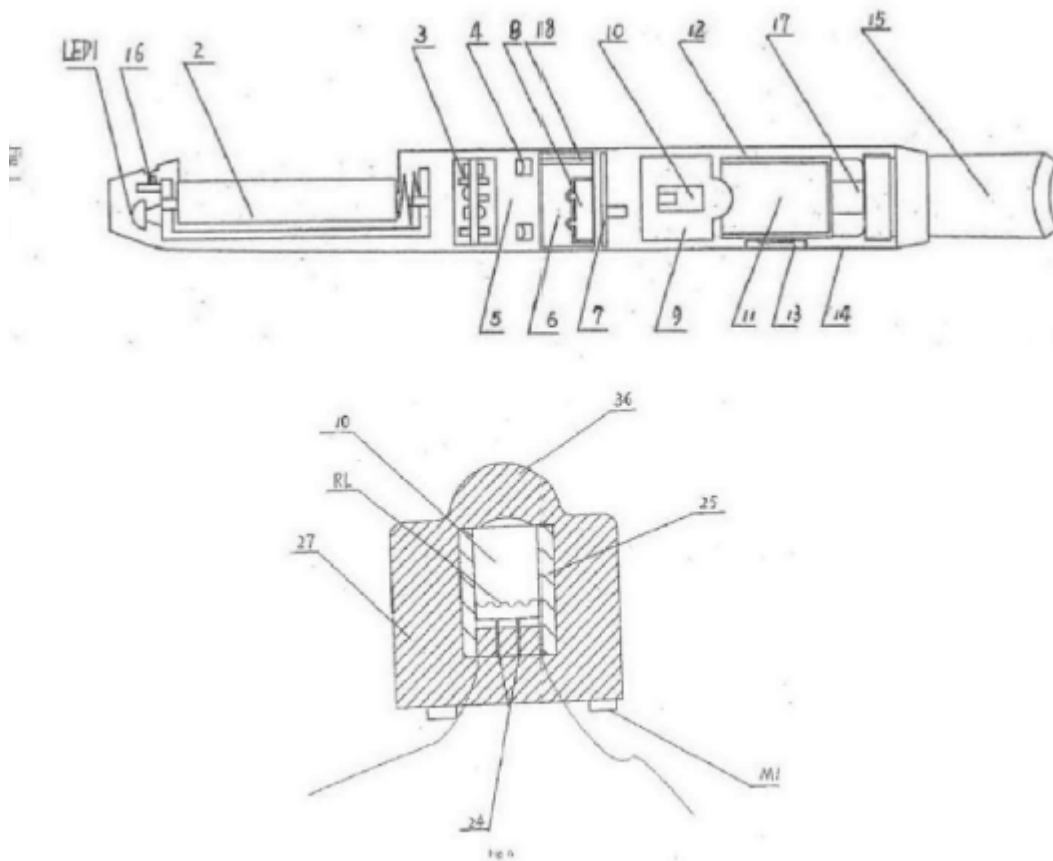


Figure 1 is a schematic diagram of the structure of an electronic cigarette that includes air inlet 4, normal pressure cavity 5, sensor 6, vapor-liquid separator 7, atomizer 9, liquid-supplying bottle 11, and mouthpiece 15 within shell 16. Id. at 2:40, 3:14-18. Figure 6 is a structural diagram of an atomizer, which includes atomization cavity

10, heating element RL, first piezoelectric element M1, atomization cavity wall 25, porous body 27, and bulge 36. Id. at 2:48, 3:24-29, 35-38.

Hon states that heating element RL “can be made of platinum wire, nickel chromium alloy or iron chromium aluminum alloy wire with rare earth element” and “can also be made into a sheet form.” Id. at 3:27-29.

Hon also states that “atomization cavity wall 25 is surrounded with the porous body 27, which can be made of foam nickel, stainless steel fiber felt, high molecule polymer foam and foam ceramic,” and that “atomization cavity wall 25 can be made of aluminum oxide or ceramic.” Id. at 3:35-38.

Hon further states that “[w]hen a smoker smokes, the mouthpiece 15 is under negative pressure, the air pressure difference or high speed stream between the normal pressure cavity 5 and the negative pressure cavity 8 will cause the sensor 6 to output an actuating signal,” which causes the cigarette to begin operating. Id. at 4:11-14. Hon describes that air enters normal pressure cavity 5 through air inlet 4, proceeds through the through hole in vapor-liquid separator 7, and flows into atomization cavity 10 in atomizer 9. Id. at 4:21-24.

The nicotine solution in porous body 27 is driven by the high speed stream passing through the ejection hole into atomization cavity 10 in the form of a droplet, where it “is subjected to the ultrasonic atomization by the first piezoelectric element M1 and is further atomized by the heating element RL.” Id. at 4:26-27. After atomization, large-diameter droplets stick to the wall and are

reabsorbed by porous body 27 via overflow hole 20, and small-diameter droplets form aerosols that are sucked out via aerosol passage 12, gas vent 17, and mouthpiece 15. Id. at 4:28-31.”

Ex. 1013, pp. 10-12.

B. Overview Of Whittemore.

In IPR2015-00859, the Board also provided the following overview of Whittemore:

1. Overview of Whittemore

Whittemore is directed to vaporizing units for a therapeutic apparatus. Ex. 1013, 1:1-2. Whittemore Figure 2 is reproduced below:

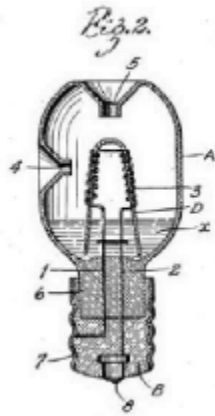


Figure 2 is an enlarged sectional view of a therapeutic apparatus with a vaporizing unit as taught by Whittemore. Id. at 1:15-16. Vaporizing vessel A is a hollow glass container that holds liquid medicament x. Id. at 1: 19-23. Conductors 1 and 2 are combined with heating element 3 such that, when conductors 1 and 2 are energized, heating element 3 is heated. Id. at 1:24-27. Wick D is combined with heating element 3 so that a portion of wick D is always in contact, or

in approximate contact, with heating element 3, and a portion of wick D is also in contact with liquid medicament x. Id. at 1:53-2:5.

According to Whittemore, medicament x is carried on wick D by capillary action to a point where it will be vaporized by the heat from heating element 3. Id. at 2:5-8. Whittemore states that “wick D consists of a thread, string or strand of some suitable wick material doubled intermediate its ends so as to form a substantially inverted V-shaped device whose side portions are encased in and surrounded by coiled or looped portions” of heating element 3, and “the lower ends or free ends of the side pieces of the wick projecting downwardly into the medicament and terminating at or in close proximity to the closed bottom 6 of the vessel.” Id. at 2:9-18.

Ex. 1013, pp. 22-23.

C. The Petition Lacks A Motivation To Combine The Prior Art

The argument for motivation to modify Hon '043 in view of Whittemore is at pp. 24-33 of the Petition. At p. 25, the Petition asserts that “[i]t would have been obvious to incorporate Whittemore’s wick D into the electronic cigarette of Hon '043 for transporting liquid via capillary action from the porous body 27 to the heating coil 26.” As set forth above, that same argument was rejected in IPR2015-00859. Ex. 1013, p. 25.

Fig. 6 of Hon '043 is shown below. The unlabeled curved lines extending from the bottom of the porous body 27 are the wire leads to the heating element 26. The heating element 26 is separated from the porous body 27 by cavity wall 25

such that the heating element 26 does not touch the porous body 27. The atomization cavity wall 25 can be made of aluminum oxide or ceramic. Ex. 1003, p. 9. When a user inhales, a high speed stream passing through the ejection holes 24 drives liquid from the porous

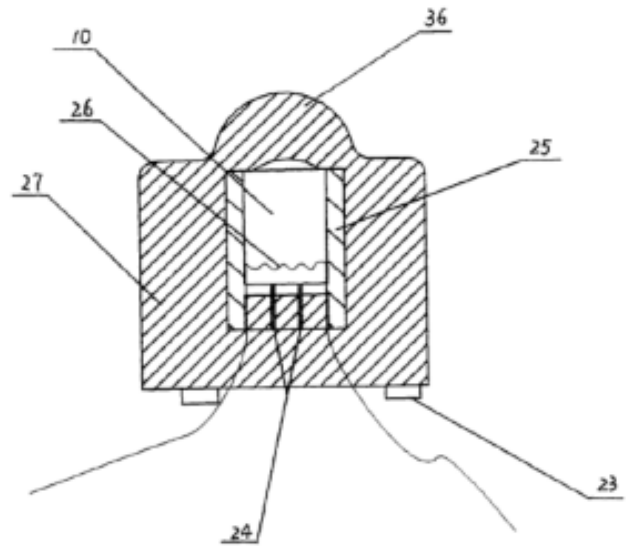


FIG. 6

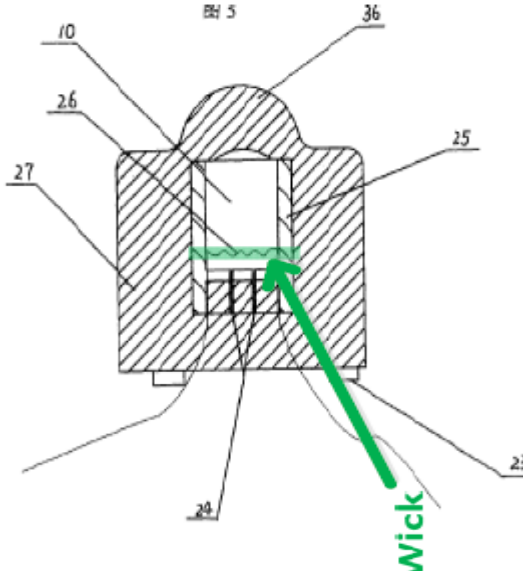
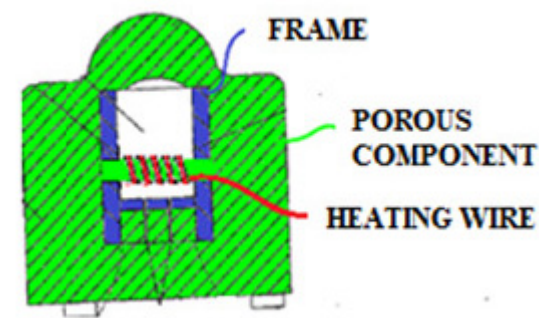
body 27 to eject into the atomization cavity 10 toward the heating element 27 in the form of droplets. Ex. 1003, p. 10.

The modification proposed in the Petition shown at below, left, is indistinguishable from the proposed modification previously rejected in IPR2015-00859 shown at below, right.

///

///

///

Petition: proposed modification of Hon '043 in view of Whittemore. Petition p. 25.	IPR2015-00859: proposed modification of Hon '043 in view of Whittemore. Ex. 2003, pp. 23 and 36.
 A cross-sectional diagram of a device. It features a central chamber with a wick (labeled 'Wick' in green) extending from a reservoir at the bottom. The wick is surrounded by a porous material. Various components are labeled with numbers: 10, 26, 27, 25, 23, 24, 36, and 5. A green arrow points to the wick.	 A cross-sectional diagram of a device. It features a central chamber with a heating wire (labeled 'HEATING WIRE' in red) wound around a porous component (labeled 'POROUS COMPONENT' in green). The device is housed within a frame (labeled 'FRAME' in blue). The porous component is also labeled 'POROUS COMPONENT' in green.

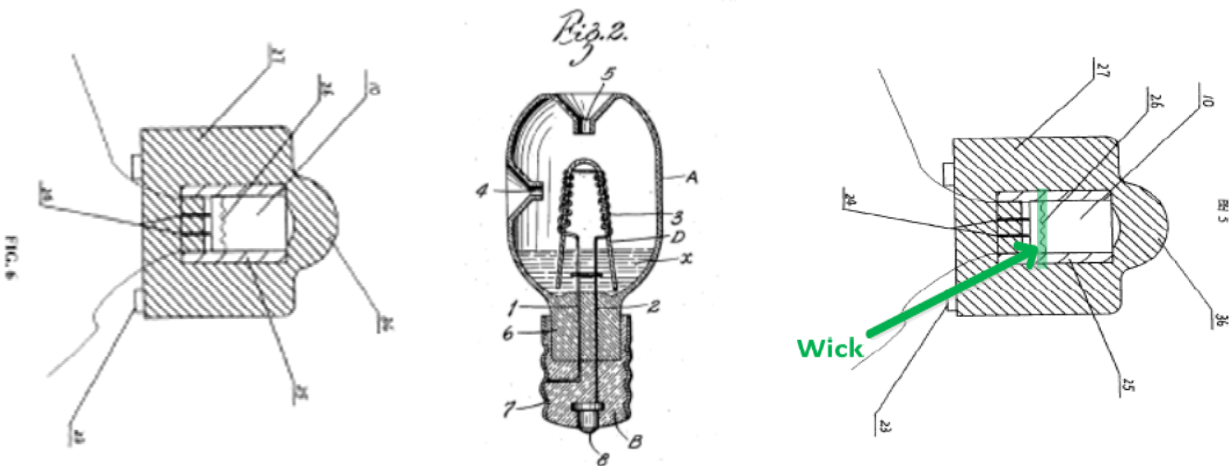
As set forth above, relative to the “heating wire wound on a part of the porous component” recited in the claims of the ’742 patent, in IPR2015-00859 the Board rejected the same proposed prior art combination and the same proposed motivation for making the combination:

Consequently, for the reasons set forth above with respect to the modification of Hon and Susa, and Hon and Abhulimen, we determine that the record before us does not establish a reasonable likelihood that Petitioner would prevail in establishing that claims 1–3 of the ’742 patent would have been obvious over the combination of Hon and Whittemore.

Ex. 1013, pp. 24-25.

That same combination should be rejected here for the same reasons. Item 26 in Hon '043 is a “heating element.” Ex. 1003, p. 9, 10 and 11. The “heating element” can be “made of platinum wire, nickel chromium alloy or iron chromium aluminum alloy wire with rare earth element, the heating element can also be made into a sheet. . . .” Ex. 1003, p. 7. The heating element 26 can also be “made into sheet form.” Ex. 1003, p. 9.

Nothing in Hon '043 suggests winding the heating element 26, in wire form or in sheet form, around a wick. Ex. 2001, ¶ 42. Here, the Petition’s proposed combination is shown visually as follows:



Hon '043 + Whittemore = Proposed Combination

What’s wrong with this picture? The proposed combination requires the following changes to Hon '043, based only on the content of Whittemore:

A. Cut openings through the wall 25, on opposite sides of the wall 25, at the location of the heater wire 26.

B. Install the wick D from Whittemore and wind the heater wire 26 around the wick D. Join the ends of the wick D to porous body 27 by passing the ends of the wick D through the newly created openings in the wall 25, in a way that allows sufficient flow on liquid from porous body 27 into the ends of the wick D. But, unlike in Whittemore, in the modification of Hon '043 the wick D is not immersed in a liquid reservoir. Rather the ends of the wick D are placed into contact with the porous body 27. The Petition and the Sturges Declaration are silent as to how this requirement may be achieved, especially given the small surface area of the ends of the wick D.

C. The ends of the wick D cannot be passed through the existing overflow holes 29 in the wall 25 (in Fig. 7 of Hon '043) because the overflow holes 29 must remain open to allow overflow in the atomization cavity 10 to be reabsorbed by the porous body 27.

D. Remove the jet ejection holes 24 and add a run-through hole which passes entirely through the bottom of the porous body 27 to create an air flow path into the atomization cavity 10.

E. Align the newly added run-through hole so that the heater wire is in the air flow path.

Those changes to Hon '043 are not obvious because relevant to Hon '043 all that Whittemore discloses is a heating coil wound on a wick. Just like the Board found in IPR2015-00859, nothing in Hon '043 or Whittemore suggests any foreseeable improvement by adding a wick D to Hon '043, let alone making all the changes necessary for the proposed combination. Ex. 2001, ¶ 37.

The Petition asserts the following reasons for modifying Hon '043 to include the wick of Whittemore. Patent Owner addresses each in turn.

1. Reliable means for transporting liquid

“Specifically, the use of Whittemore’s porous wick improves the device of Hon ‘043 in the same way as it improves the vaporizing unit of Whittemore. The porous wick provides a reliable means for transporting liquid from a liquid supply to a heating element for subsequent vaporization.” Petition p. 28.

But, neither of Hon ‘043 or Whittemore mention any difficulty in transporting liquid or a need for a reliable means for doing so. Below, Fig. 2 of Whittemore is shown on the top left, the proposed combination of Whittemore and Hon '043 is shown top right, and how that proposed combination fits into the device of Hon '043 is shown below.

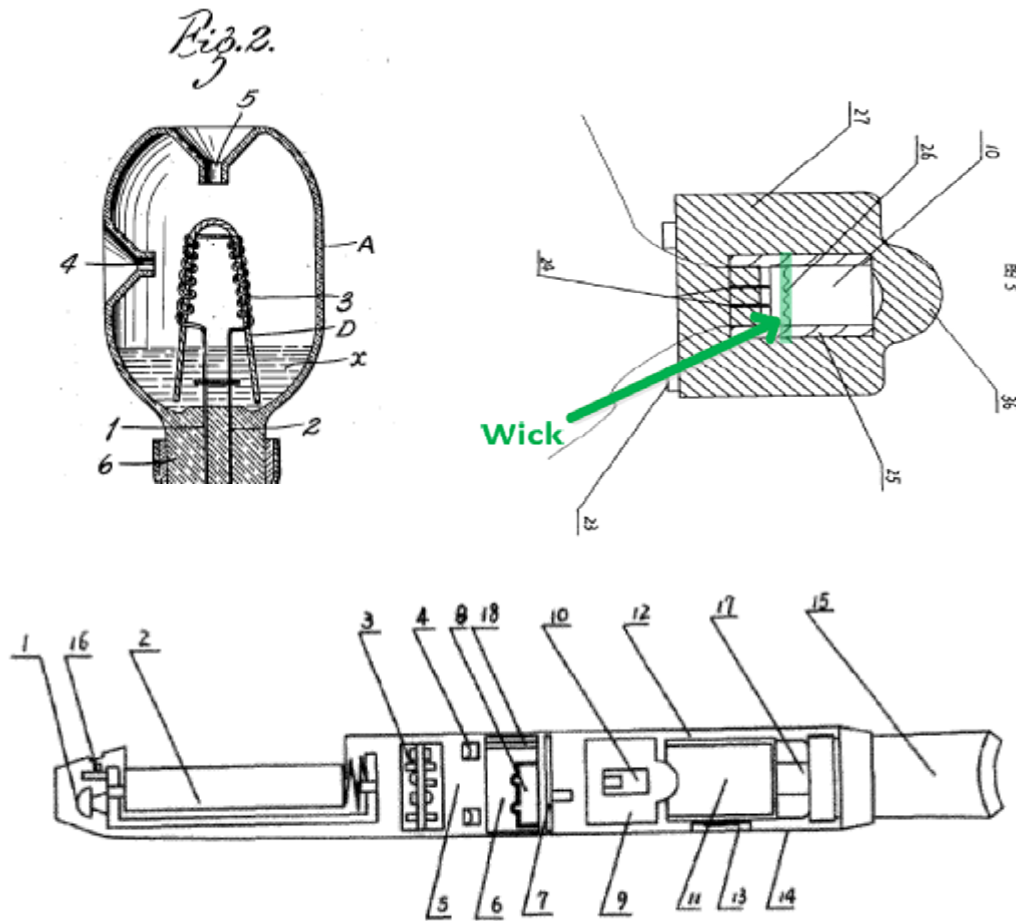


FIG. 1

In Whittemore, the ends of the wick D are immersed in the reservoir of liquid, and the wick functions to move conduct liquid from the reservoir to the heating element 3. Whittemore's device must beheld upright so as not to spill liquid out of the orifice 4. One skilled in the art would not have combined Whittemore with an electronic cigarette designed to be used in any orientation to more closely resemble the use of a conventional cigarette.

Moreover, Whittemore's wick D has a different configuration, position, and function in the proposed modification of Hon '043. In the proposed modification,

the wick D is shown in contact with atomization cavity wall 25 or the porous body 27. In either case the wick D is not in contact with the liquid supply 11 (shown in Fig. 1).

Petitioner's expert states the wick D in the modification of Hon '043 is converted into part of the porous body but provides no reason to do so. Ex. 1015, ¶ 83. As part of the porous body, the wick no longer functions as a wick for moving liquid from a liquid reservoir to a heating element. Rather, it moves liquid from one part of the porous body 27 (not liquid reservoir 11) to another part of the porous body. A person of ordinary skill would not find this transformation of the wick D to be obvious. Ex. 2001, ¶ 39.

2. More efficient heating

The Petition also asserts that the modification of Hon '043 would provide more efficient heating in the following passages:

As the PHOSITA would have readily appreciated, the porous wick/heating coil wire configuration of Whittemore provides more efficient heating than the arrangement disclosed in Hon '043. The PHOSITA would have readily understood that the Hon '043 configuration is thermally inefficient.

Petition p. 30 (emphasis added).

In contrast to the configuration of Hon '043, the PHOSITA would have recognized that the configuration disclosed in Whittemore

(i.e., a heating wire coil wound on a porous wick) is thermally more efficient. . . .

Petition p. 31 (emphasis added).

PHOSITA would have been highly motivated to modify Hon '043 to include the porous wick of Whittemore to achieve the predicted result of more efficient heating. . . .

Petition p. 32 (emphasis added).

[T]he heating wire coil 26, allows for transporting the liquid solution so that it is in direct contact with the heating wire 26, which is a thermally more efficient way to atomize the liquid than the convective heating on which unmodified Hon '043 relies.”

Petition pp. 32-33 (emphasis added).

First, as set forth above, in IPR2015-00859, the Board rejected that argument finding that “more efficient heating” was insufficient to demonstrate motivation for modifying Hon '043 in view of Whittemore as proposed in the Petition. Ex. 1013, pp. 24-25.

Moreover, again as set forth above, the proposed combination is not simply adding Whittemore’s wick to Hon '043. The combination would take substantial modification to Hon '043 and also change the principle operation of Hon '043.

D. The Proposed Modification Changes The Principal Of Operation Of Hon '043

In Hon '043, atomization is described at pages 10-11:

The air enters the normal pressure cavity 5 through the air inlet 4, passes through the air passage 18 of the sensor and then the through hole in the vapor- liquid separator 7, and flows into the atomization cavity 10 in the atomizer 9. The high speed stream passing through the ejection hole drives the nicotine solution in the porous body 27 to eject into the atomization cavity 10 in the form of droplet, where the nicotine solution is subjected to the ultrasonic atomization by the first piezoelectric element 23 and is further atomized by the heating element 26. After the atomization, the large diameter droplets stick to the wall under the action of eddy flow and are reabsorbed by the porous body 27 via the overflow hole 29, whereas the small diameter droplets float in stream and forms aerosols, which are sucked out via the aerosol passage 12, gas vent 17 and mouthpiece 15.

Ex. 1003, pp. 10-11.

Hon '043 continues that “[t]o simplify the design, the first piezoelectric element 23 on the atomizer 9 can be omitted, and the atomization of the nicotine solution will be made only by the heating element 26.” Ex. 1003, p. 11.

The wick in the modification of Hon '043 as proposed in the Petition presumably achieves atomization in the same way as the wick in Whittemore, which Whittemore describes as:

In order that the unit will function properly, even though the heating element or filament 3 is spaced a considerable distance above or away from the medicament x, the unit is equipped with a wick D made of any suitable material and combined with the heating element

or filament 3 in such a way that a portion of said wick is always in contact or approximate contact with the heating element or filament 3, and a portion of said wick is always in contact with the medicament in the vaporizing vessel, whereby said medicament will be carried by capillary action to a point where it will be vaporized by the heat from the filament 3.

Ex. 1004, Col. 1:50-2:7.

Unlike in Hon '043, with the wick in the proposed modification of Hon '043, presumably air flow does not participate in atomization, no droplets of liquid are formed, and no droplets of liquid are moved into the atomization chamber via a high speed stream. Correspondingly, in the modification of Hon '043, there is no reabsorption of large diameter droplets, with small diameter droplets forming an aerosol which is sucked out via the aerosol passage, as the operation of Hon '043 is described at the top of Hon '043, Ex. 1002, page 11.

As the modification of Hon '043 shown above changes the principle of operation of the Hon '043, the teachings of Hon '043 and Whittemore are not sufficient to render the claims prima facie obvious. MPEP 2143.01 VI.

VI. EXAMINATION HISTORY OF THE '548 PATENT

Claim 1 of the '548 patent recites “the heating wire coil wound on the porous component.” Claim 8 recites “a heating wire coil wound on the first section of the porous component.” Claim 11 recites a heating wire “wound on the fiber member.” Those limitations were specifically cited in reasons for allowance

during the examination of the claims in the '548 patent, and also in related applications.

A. Examination Of The '548 Patent

During examination of the '548 patent the combination of Hon '043 and Whittemore was fully considered. In a Dec. 1, 2015 interview with the Examiner and the Examiner's Supervisor, the petition in IPR2015-00859 making the same combination proposed by Petitioner here was discussed. Ex. 2006 at 1. The combination of Hon '043 and Whittemore as proposed in IPR2015-00859 was further cited in a separate two-page paper filed Jan. 13, 2016, as follows:

3. In IPR2015-00859 the Petition asserts claims of U.S. Patent No. 8,365,742 are invalid over: CN 2719043 (Family 3, US 2007/0267031) in view of Susa EP 0845220; CN 2719043 in view of Counts U.S. Patent No. 5,144,962; CN 2719043 in view of Abhuliman WO 2003/034847; CN 2719043 in view of Whittemore U.S. Patent No. 2,057,353; Susa alone; Susa in view of Abhuliman; and Susa in view of Whittemore."

Ex. 2007 at 1.

Then, in the March 15, 2016 Notice of Allowance the Examiner wrote:

None of the prior art of record teaches nor reasonably suggests an electronic cigarette which includes a heating wire coil would around a porous component (set on a frame having a run-through hole), provided in an air flow path, wherein the heating wire coil is

oriented perpendicularly to the longitudinal axis of the housing of the electronic cigarette.

Ex. 2008 at 6.

B. Examination Of Application 13/740,011

The '548 patent is a continuation of Application No. 13/740,011. In Application No. 13/740,011, the combination of Hon '043 and Whittemore as discussed in the petition in IPR2015-00859 was cited in a separate two-page paper filed 12/22/2015, in a similar format as in the '548 patent as quoted above. Ex. 2009 at 2-3. The reasons for allowance in the June 21, 2016 Notice of Allowance in Application No. 13/740,011 are:

The closest prior art neither teaches nor suggests a vaporizing device including a housing having within it an atomizing chamber within which is placed a wire coil heater wound on a porous component connected to a battery.

Ex. 2010 at 7.

C. Examination Of The '742 Patent (Application 13/079,937)

The '548 patent is an indirect continuation of the '742 patent. During examination of the '742 patent, in an Office Action dated July 19, 2012, the Examiner identified Hon '043 as the closest prior art of record. Ex. 2011 at 3. During an Examiner Interview on August 14, 2012, Hon '043 (specifically its PCT equivalent Hon WO/2005/099494, Ex. 1005) was discussed. Ex. 2012 at 1.

Robinson U.S. Patent No. 1,775,947, Ex. 2013; Counts US Patent No. 5,144,962, Ex. 2014; and Susa EP 0 845 220, Ex. 2015, were also discussed at the Examiner Interview. Ex. 2012 at 1. Each of these references discloses a wire heating coil.

The Examiner's statement of reasons for allowance of the '742 patent was:

The Examiner believes that the closest prior art of record, namely the CN2719043 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 a heating wire...the heating wire is wound on the said porous component." Hence, the claim is allowable over the prior art of record.

Ex. 2011 pp. 3-4.

CN2719043 referenced above is Hon '043, the primary reference relied on in the Petition.

///

///

///

VI. CONCLUSION

The Petition fails to demonstrate a reasonable likelihood that the petitioner would prevail with respect to any claim of the '548 Patent. Institution of *Inter Partes* Review of any claim of the '548 Patent should be denied.

Respectfully submitted,

Date: December 9, 2016 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 COMPLIANCE

The undersigned certifies that this brief complies with the type-volume limitations of 37 CFR § 42.24. This brief contains 5,857 words as calculated by the “Word Count” feature of Microsoft Word 2010, the word processing program used to create it.

Date: December 9, 2016 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 service on Petitioner was made as follows, in accordance with 37 CFR 42.6(e):

Date of service: December 9, 2016

Manner of service: 1. Electronic submission through the USPTO Patent Trial and Appeal Board End-to-End System
2. Electronic mail

Document(s) served: **PATENT OWNER PRELIMINARY RESPONSE TO PETITION FOR *INTER PARTES* REVIEW**

Persons served: Ralph J. Gabric, Lead Counsel
Robert Mallin, Back-up Counsel
Yuezhong Feng, Back-up Counsel
Brinks Gilson & Lione
Suite 3600 NBC Tower
455 Cityfront Plaza Drive
Chicago IL 60611-5599
rgabric@brinksgilson.com
rmallin@brinksgilson.com
yfeng@brinksgilson.com

/ Amy Candeloro /
Amy Candeloro, Paralegal
Perkins Coie LLP