

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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R.J. Reynolds Vapor Company,

Petitioner

v.

Fontem Holdings 1 B.V.

Patent Owner

U.S. Patent No.: 9,326,548

Issue Date: May 3, 2016

Title: Electronic Cigarette

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*Inter Partes* Review No.: To Be Assigned

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**PETITION FOR *INTER PARTES* REVIEW OF  
U.S. PATENT NO. 9,326,548 PURSUANT TO  
35 U.S.C. §§ 311-319 AND 37 C.F.R. § 42**

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## EXHIBITS LIST

<b>Exhibit No.</b>	<b>Description</b>
<b>Exhibit 1001:</b>	U.S. Pat. No. 9,326,548 to Lik Hon
<b>Exhibit 1002:</b>	U.S. Pat. Pub. No. 2009/0095311 to Li Han
<b>Exhibit 1003:</b>	Chinese Pat. Appl. No. 200620090805.0
<b>Exhibit 1004:</b>	English translation of Chinese Pat. Appl. No. 200620090805.0
<b>Exhibit 1005:</b>	PCT publication corresponding to PCT/CN2007/001575
<b>Exhibit 1006:</b>	English translation of PCT ‘575
<b>Exhibit 1007:</b>	PCT publication corresponding to PCT/CN2007/001576
<b>Exhibit 1008:</b>	English translation of PCT ‘576
<b>Exhibit 1009:</b>	U.S. Pat. Appl. No. 12/226,818 Filed October 29, 2008, including English translation of the PCT publication (also included as Ex. 1006), Application Data Sheet, and Preliminary Amendment
<b>Exhibit 1010:</b>	U.S. Pat. Appl. No. 13/079,937 with Preliminary Amendment Filed April 5, 2011
<b>Exhibit 1011:</b>	Amendment with Substitute Specification Filed in USSN 13/079,937 on August 7, 2012
<b>Exhibit 1012:</b>	U.S. Pat. Appl. No. 13/740,011 Filed January 11, 2013
<b>Exhibit 1013:</b>	U.S. Pat. Appl. No. 14/244,376 Filed April 3, 2014
<b>Exhibit 1014:</b>	Amendment Filed in 14/244,376 on November 20, 2015
<b>Exhibit 1015:</b>	Declaration of Dr. Robert Sturges
<b>Exhibit 1016:</b>	Board’s Decision Denying Institution in IPR2015-00859
<b>Exhibit 1017:</b>	Rulings On Claims Construction, <i>Fontem Ventures, B.V. et al. v. NJOY, Inc. et al.</i> , No. 2:14-cv-01645 (C.D. Cal., filed March 5, 2014)
<b>Exhibit 1018:</b>	U.S. Pat. No. 8,156,944
<b>Exhibit 1019:</b>	Complaint, <i>Fontem Ventures B.V. et al. v. R.J. Reynolds Vapor Company</i> , No. 2:16-cv-03049 (C.D. Cal., filed May 3, 2016)

## I. INTRODUCTION

Pursuant to 35 U.S.C. §§ 311-319 and 37 C.F.R. § 42, R.J. Reynolds Vapor Company (“Petitioner”) respectfully requests *Inter Partes* Review (“IPR”) of claims 1-14 of U.S. Pat. No. 9,326,548 to Lik Hon, titled “Electronic Cigarette” (“‘548 patent,” Ex. 1001), which is currently assigned to Fontem Holdings 1 B.V. (“Patent Owner”). The Petitioner authorizes the Patent and Trademark Office to charge Deposit Account No. 23-1925 for the fees set in 37 C.F.R. § 42.15(a) for this Petition, and further authorizes payment of any additional fees to be charged to this Deposit Account.

Challenged claims 1-14 of the ‘548 patent are invalid as anticipated under 35 U.S.C. § 102(b) by the intervening publication of the ‘548 patent’s great grandparent application (Serial No. 12/226,818 filed October 29, 2008 (the “great grandparent ‘818 application”)), which published on April 16, 2009 (US2009/0095311 (“‘311 publication”), Ex. 1002). *See* Ex. 1015 at ¶¶ 23-59. In order to survive this invalidity ground, the Patent Owner must demonstrate that claims 1-14 are entitled to a filing date prior to April 17, 2010. This, the Patent Owner cannot do, because the narrow disclosure of the great grandparent ‘818 application, although anticipating, does not provide written description support for the broad scope of claims 1-14 of the ‘548 patent.

Petitioner recently filed a similar petition for *inter partes* review challenging claims 2-3 of U.S. Patent No. 8,365,742 (the “‘742 patent”), which issued from the

same application family as the ‘548 patent at issue here. *See* IPR2016-01532. As explained in that petition, in an effort to cure the lack of written description support and broaden the scope of the invention described in the great grandparent ‘818 application, the Patent Owner filed a “substitute” specification during the prosecution of an intervening divisional application that deleted limiting language from the ‘818 application. Even worse, the Patent Owner improperly characterized the revisions as merely the correction of grammatical and punctuation errors, and the deletions as the elimination of “extraneous” and “redundant” text. Ex. 1011 at 2. Regardless of whether the substitute specification provides written description support for claims 1-14 of the ‘548 patent, the great grandparent ‘818 application does not.

More specifically, claims 1-14 of the ‘548 patent broadly encompass an electronic cigarette in which the atomizer assembly is located in a “cylindrical housing” while there is no limitation specifically directed to the location of the battery assembly, other than the battery assembly is merely “coaxial” with the atomizer assembly. Ex. 1001 at claims 1-14. In stark contrast to the broad scope of claims 1-14 of the ‘548 patent, the great grandparent ‘818 application narrowly describes the “invention” as an electronic cigarette with the battery assembly and the atomizer assembly located together in the same one-piece shell. *See* Ex. 1015 at ¶¶ 62-77. *See, e.g., PowerOasis, Inc. et al. v. T-Mobile USA, Inc.*, 522 F.3d



1299, 1306 (Fed. Cir. 2008) (“It is elementary patent law that a patent application is entitled to the benefit of the filing date of an earlier filed application only if the disclosure of the earlier application provides support for the claims of the later application, as required by 35 U.S.C. § 112”) (citations omitted). Nowhere does the great grandparent ‘818 application describe or contemplate an electronic cigarette of the “invention” having the battery assembly and atomizer assembly located in separate shells, or one in which the battery assembly is merely coaxial with the atomizer assembly, as broad claims 1-14 of the ‘548 patent permit. *See, e.g., Anascape, Ltd. v. Nintendo of Am., Inc.*, 601 F.3d 1333, 1339 (Fed. Cir. 2010) (“A patentee is not deemed to disclaim every variant that it does not mention. However, neither is a patentee presumed to support variants that are not described.”); *PowerOasis, Inc.*, 522 F.3d at 1306 (“Entitlement to a filing date does not extend to subject matter which is not disclosed, but would be obvious over what is expressly disclosed”) (citations omitted).

Accordingly, claims 1-14 of the ‘548 patent lack written description support in the great grandparent ‘818 application, which narrowly describes the “invention” as an electronic cigarette where the battery assembly and the atomizer assembly are located together in the same one-piece shell. Because claims 1-14 are not entitled to the filing date of the great grandparent ‘818 application, they are

anticipated by its intervening publication, *i.e.*, the ‘311 publication, under 35 U.S.C. § 102(b).

## **II. MANDATORY NOTICES UNDER 37 C.F.R. § 42.8(A)(1)**

### **A. Real Party-in-Interest (§ 42.8(b)(1))**

For purposes of 35 U.S.C. § 312(a)(2) and 37 C.F.R. § 42.8(b)(1) only, Petitioner, R.J. Reynolds Vapor Company, identifies the real parties-in-interest as R.J. Reynolds Vapor Company, RAI Strategic Holdings, Inc., RAI Innovations Company (the direct parent company of R.J. Reynolds Vapor Company and RAI Strategic Holdings, Inc.), R.J. Reynolds Tobacco Company, and RAI Services Company. Each of the foregoing entities is a direct or indirect wholly owned subsidiary of Reynolds American Inc. Although Petitioner does not believe that Reynolds American Inc. is a real party-in-interest (*see* Patent Trial Practice Guide 77 Fed. Reg., Vol. 77, No. 157 (2012) at 48759-60), Reynolds American Inc. and each of its other wholly owned subsidiaries (direct and indirect) nevertheless agree to be bound by any final written decision in these proceedings to the same extent as a real party-in-interest. *See* 35 U.S.C. § 315(e).

### **B. Related Matters (37 C.F.R. § 42.8(b)(2))**

#### **1. Related Matters**

Petitioner is not aware of any reexamination certificates or pending prosecution concerning the ‘548 patent. Petitioner is a defendant in the following

litigation involving the ‘548 patent: *Fontem Ventures B.V. et al. v. R.J. Reynolds Vapor Company*, No. 2:16-cv-03049 (C.D. Cal., filed May 3, 2016). Fontem has alleged that Reynolds infringes claims 1-14 of the ‘548 patent. The above-referenced action is one of three related patent infringement actions filed by the Patent Owner against the Petitioner. In the related action, *Fontem Ventures B.V. et al. v. R.J. Reynolds Vapor Company*, No. 2:16-cv-02286 (C.D. Cal., filed April 4, 2016), the Patent Owner has asserted U.S. Patent Nos. 8,365,742; 8,490,628; 8,893,726; and 8,899,239. In addition to the petitions for IPR noted below with respect to the ‘742 patent, the Petitioner has also recently filed petitions for IPR against the ‘628 patent (2016IPR-01527), the ‘726 patent (2016IPR-01270), and the ‘239 patent (2016IPR-01272). In the other related action, *Fontem Ventures B.V. et al. v. R.J. Reynolds Vapor Company*, No. 2:16-cv-04534 (C.D. Cal., filed June 22, 2016), the Patent Owner has asserted U.S. Patent No. 9,370,205.<sup>1</sup>

The Petitioner is aware of the following additional matters involving or related to the ‘548 patent.

Pending Litigations and IPRs

<b>Case Name</b>	<b>Filed</b>
<i>Fontem Ventures BV et al. v. Nu Mark LLC</i> , 2-16-	June 22, 2016

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<sup>1</sup> The court in the three related actions recently ordered transfer of the cases to the United States District Court for The Middle District of North Carolina.

<b>Case Name</b>	<b>Filed</b>
cv-04537 (C.D. Cal.)	
<i>Fontem Ventures B.V. and Fontem Holdings 1 B.V. v. Nu Mark LLC</i> , 2-16-cv-02291 (C.D. Cal.)	April 4, 2016
Petition for <i>Inter Partes</i> Review by R.J. Reynolds Vapor Company, IPR No.: To Be Assigned (challenging claims 1-14 of the ‘548 patent)	Filed concurrently with this petition
Petition for <i>Inter Partes</i> Review by Nu Mark LLC, IPR2016-01641 (challenging claims 1-14 of the ‘548 patent)	August 18, 2016
Petition for <i>Inter Partes</i> Review by Nu Mark LLC, IPR2016-01642 (US9,370,205)	August 18, 2016
Petition for <i>Inter Partes</i> Review by R.J. Reynolds Vapor Company, IPR2016-01268 (PTAB) (US8,365,742)	July 2, 2016
Petition for <i>Inter Partes</i> Review by R.J. Reynolds Vapor Company, IPR2016-01532 (PTAB) (US8,365,742)	August 5, 2016
Petition for <i>Inter Partes</i> Review by Nu Mark LLC, IPR2016-01303 (PTAB) (US8,365,742)	June 28, 2016
<i>Nu Mark LLC v. Fontem Holdings 1 B.V.</i> , IPR2016-01307 (PTAB) (US8,375,957)	June 28, 2016
<i>Nu Mark LLC v. Fontem Holdings 1 B.V.</i> , IPR2016-01309 (PTAB) (US8,863,752)	June 28, 2016

#### Pending Patent Applications

<b>Serial No.</b>	<b>Filed</b>
U.S. Patent Application No. 13/740,011, claiming priority to the ‘742 patent	January 11, 2013
U.S. Patent Application No. 15/167,659, claiming priority to the ‘742 patent	May 27, 2016
U.S. Patent Application No. 15/167,690, claiming priority to the ‘742 patent	May 27, 2016
U.S. Patent Application No. 15/158,421, claiming priority to the same foreign application as does the ‘742 patent	May 18, 2016
U.S. Patent Re-Examination No. 95/002,235, claiming priority to the ‘742 patent	September 13, 2012

### Terminated Litigations and Previous IPR Petitions

<b>Case Name</b>	<b>Filed</b>
<i>Fontem Ventures BV et al v. NJOY, Inc.</i> , No. 2:14-cv-01645 (C.D. Cal.)	March 5, 2014
<i>Fontem Ventures BV et al v. LOEC, Inc. et al</i> , No. 2:14-cv-01648 (C.D. Cal.)	March 5, 2014
<i>Fontem Ventures BV et al v. CB Distributors, Inc. et al</i> , No. 2:14-cv-01649 (C.D. Cal.)	March 5, 2014
<i>Fontem Ventures BV et al v. Vapor Corp.</i> , No. 2:14-cv-01650 (C.D. Cal.)	March 5, 2014
<i>Fontem Ventures BV et al v. FIN Branding Group, LLC et al</i> , No. 2:14-cv-01651 (C.D. Cal.)	March 5, 2014
<i>Fontem Ventures BV et al v. Ballantyne Brands, LLC</i> , No. 2:14-cv-01652 (C.D. Cal.)	March 5, 2014
<i>Fontem Ventures BV et al v. Spark Industries, LLC</i> , No. 2:14-cv-01653 (C.D. Cal.)	March 5, 2014
<i>Fontem Ventures BV et al v. Logic Technology Development LLC</i> , No. 2:14-cv-01654 (C.D. Cal.)	March 5, 2014
<i>Fontem Ventures BV et al v. VMR Products, LLC</i> , No. 2:14-cv-01655 (C.D. Cal.)	March 5, 2014
<i>Ruyan Investment (Holdings) Limited v. Sottera, Inc.</i> , 2:12-CV-5454 (C.D. Cal.)	June 22, 2012
<i>Ruyan Investment (Holdings) Limited v. LOEC, Inc.</i> , 2:12-CV-5455 (C.D. Cal.)	June 22, 2012
<i>Ruyan Investment (Holdings) Limited v. CB Distributors, Inc. et al</i> , 2:12-CV-5456 (C.D. Cal.)	June 22, 2012
<i>Ruyan Investment (Holdings) Limited v. The Safe Cig LLC</i> , 2:12-CV-5462 (C.D. Cal.)	June 22, 2012
<i>Ruyan Investment (Holdings) Limited v. Vapor Corp.</i> , 2:12-CV-5466 (C.D. Cal.)	June 22, 2012
<i>Ruyan Investment (Holdings) Limited v. Finiti Branding Group LLC</i> , 2:12-CV-5468 (C.D. Cal.)	June 22, 2012
<i>Ruyan Investment (Holdings) Limited v. Barjan LLC et al</i> , 2:12-CV-5470 (C.D. Cal.)	June 22, 2012
<i>Ruyan Investment (Holdings) Limited v. Spark Industries LLC</i> , 2:12-CV-5472 (C.D. Cal.)	June 22, 2012
<i>Ruyan Investment (Holdings) Limited v. Nicotek</i>	June 22, 2012

<b>Case Name</b>	<b>Filed</b>
<i>LLC</i> , 2:12-CV-5477 (C.D. Cal.)	
<i>Ruyan Investment (Holdings) Limited v. Logic Technology Development LLC</i> , 2:12-CV-5482 (C.D. Cal.)	June 22, 2012
<i>In re: Fontem Holdings I B.V.</i> , Appeal No. 15-1511 (Fed. Cir.)	April 1, 2015
<i>JT International S.A. v. Fontem Holdings I B.V.</i> , IPR2015-01587 (PTAB) (US8,365,742)	July 14, 2015
<i>VMR Products, LLC v. Fontem Holdings I B.V.</i> , IPR2015-00859 (PTAB) (US8,365,742)	March 10, 2015
<i>CB Distributors, Inc. v. Fontem Holdings I B.V.</i> , IPR2013-00387 (PTAB) (US8,156,944)	June 27, 2013
<i>Logic Technology Development, LLC v. Fontem Holdings I B.V.</i> , IPR2015-00098 (PTAB) (US8,375,957)	October 21, 2014
<i>NJOY, Inc. v. Fontem Holdings I B.V.</i> , IPR2015-01301 (PTAB) (US8,863,752)	May 29, 2015
<i>JT International S.A. v. Fontem Holdings I B.V.</i> , IPR2015-01513 (PTAB) (US8,375,957)	June 26, 2015
<i>JT International S.A. v. Fontem Holdings I B.V.</i> , IPR2015-01604 (PTAB) (US8,863,752)	July 20, 2015

### C. Lead and Back-Up Counsel

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#### **D. Service Information**

Service of any documents via hand delivery, express mail or regular mail may be made to the lead and backup counsel at the postal mailing address above. Petitioner also consents to service by email at the above-designated email addresses.

### **III. GROUNDS FOR STANDING**

As required by 37 C.F.R. § 42.104(a), Petitioner certifies that the ‘548 Patent is available for *inter partes* review and that Petitioner is not barred or estopped from requesting *inter partes* review on the grounds identified herein.

### **IV. IDENTIFICATION OF CHALLENGE AND STATEMENT OF THE PRECISE RELIEF REQUESTED (37 C.F.R. § 42.104 (B))**

**Ground 1:** Claims 1-14 of the ‘548 patent are unpatentable under 35 U.S.C. § 102 (pre-AIA) as anticipated by U.S. Pat. Pub. No. 2009/0095311 (“‘311 publication,” Ex. 1002). Claims 1-14 of the ‘548 patent are not entitled to a priority date earlier than April 17, 2010, and therefore, the ‘311 publication, which was published on April 16, 2009, qualifies as prior art under § 102(b).

This Petition is accompanied by the Declaration of Dr. Robert Sturges (“Sturges Decl.”). Ex. 1015.

**Statement of Non-Redundancy:** Petitioner is concurrently filing another Petition for IPR on the ‘548 patent (IPR No.: To Be Assigned). The present Petition is not redundant of the ground presented in the concurrently filed petition, which assumes without conceding that claims 1-14 are entitled to the priority of the filing date of PCT/CN2007/001575, and which asserts unpatentability under 35 U.S.C. § 103. In contrast, the present Petition asserts one ground of unpatentability under § 102(b) and alleges that claims 1-14 are not entitled to a priority date any earlier than April 17, 2010.

#### **V. THRESHOLD REQUIREMENT FOR *INTER PARTES* REVIEW**

This Petition meets the threshold requirement for *inter partes* review because it establishes “a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a). For the ground of unpatentability proposed below, there is a reasonable likelihood that Petitioner will prevail with respect to at least one of the challenged claims.



## **VI. STATEMENT OF REASONS FOR THE RELIEF REQUESTED**

### **A. Summary of the Argument**

Claims 1-14 of the '548 patent are not entitled to the priority date of the great grandparent '818 application because the '818 application does not provide written description support for the broad scope of claims 1-14 of the '548 patent, which merely require the atomizer assembly is located in a cylindrical housing, without any limitations specifically directed to the location of the battery assembly other than the battery assembly is coaxial with the atomizer assembly. Ex. 1001 at claims 1-14. In contrast to the broad scope of claims 1-14 of the '548 patent, the great grandparent '818 application narrowly describes the “invention” as one in which the battery assembly and the atomizer assembly are located together in the same, one-piece shell. With respect to the “invention,” no other structure or location for the battery assembly and the atomizer assembly is described in the great grandparent '818 application. Accordingly, claims 1-14 of the '548 patent are broader than the narrow invention described in the great grandparent '818 application, and thus are not entitled to its October 29, 2008 filing date. Therefore, the intervening publication of the great grandparent '818 application (*i.e.*, the '311 publication, Ex. 1002), which discloses an electronic cigarette that is within the scope of the broadly claimed invention of claims 1-14, is invalidating prior art under 35 U.S.C. § 102(b).

Accordingly, Petitioner respectfully requests that the Board find that claims 1-14 of the '548 patent are invalid under 35 U.S.C. § 102(b).

## B. Background of the '548 Patent

The '548 patent is generally directed to an electronic cigarette.

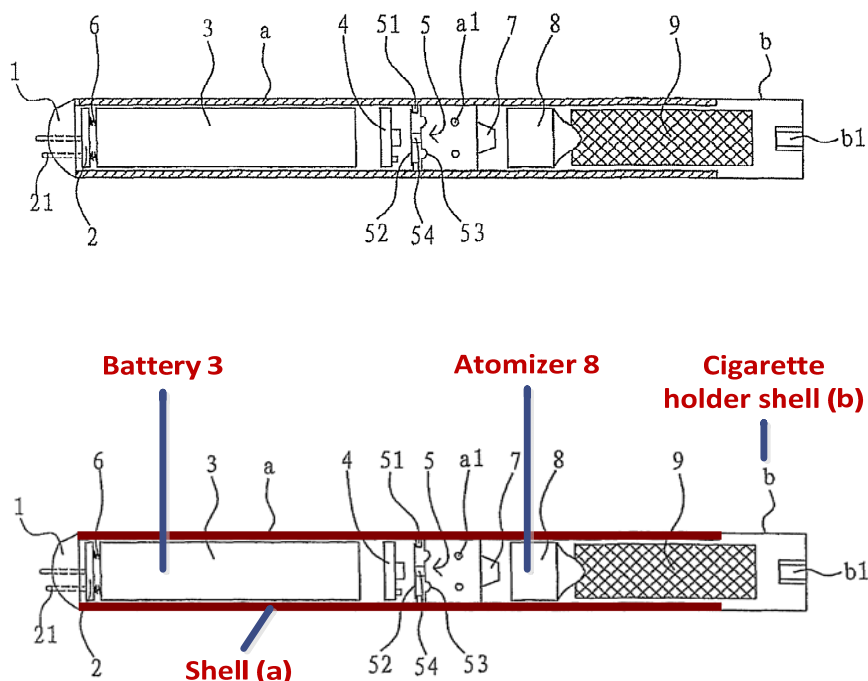
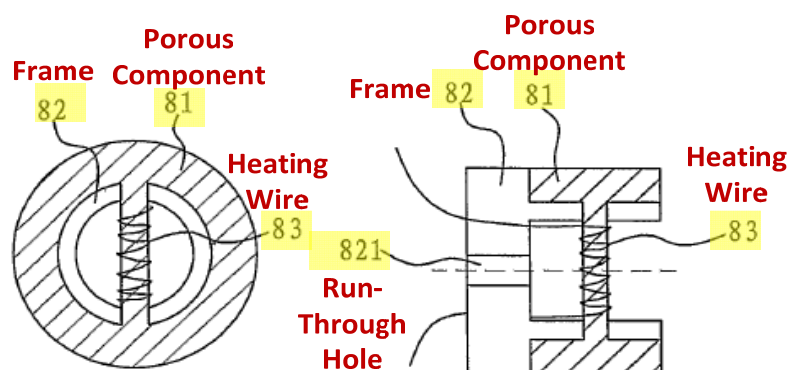


Fig. 1

With respect to Figure 1, the electronic cigarette includes a shell or housing (a), which is hollow and integrally formed. The battery assembly (which may include battery 3, operating indicator 1, electronic circuit board 4, and airflow sensor 5, which are connected to the battery) connects with the atomizer assembly 8, and both are located in the shell. Ex. 1001 at 2:48-60. “[T]he cigarette bottle assembly includes a hollow cigarette holder shell (b), and a perforated component for liquid storage (9) inside the shell (b).” *Id.* at 4:1-3. “One end of the cigarette

holder shell (b) plugs into the shell (a).” *Id.* at 4:9-10. When shell (b) is plugged into shell (a), the cigarette bottle assembly is located in one end of shell (a), and is detachable from shell (a). *Id.* at 2:53-54. The atomizer assembly 8 has a porous component that contacts the liquid storage 9 in the cigarette bottle assembly to achieve capillary transport of liquid from the cigarette bottle assembly to the atomizer assembly 8. *Id.* at 4:55-59. The liquid from the cigarette bottle assembly is heated and atomized in the atomizer assembly 8. *Id.* at 4:28-44.

Further details of the atomizer assembly 8 are illustrated in annotated Figs. 17 and 18, which are reproduced below. *Id.* at Figs. 17-18.



The atomizer assembly 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). 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). One end of the porous component (81) fits with the cigarette bottle assembly.” *Id.* at 5:61-6:2.

### **C. Person Having Ordinary Skill in the Art (“PHOSITA”)**

The PHOSITA is a hypothetical person who is presumed to know the relevant prior art. Factors that guide the determination of level of ordinary skill in the art may include: the education level of those working in the field, the sophistication of the technology, the types of problems encountered in the art, the prior art solutions to those problems, and the speed at which innovations are made may help establish the level of skill in the art.

The PHOSITA for the ‘548 patent at the time of the alleged invention would have had at least the equivalent of a Bachelor’s degree in electrical engineering, mechanical engineering, or biomedical engineering or related fields, along with at least 5 years of experience designing electromechanical devices, including those involving circuits, fluid mechanics, and heat transfer. Ex. 1015 at ¶¶ 15-16.

### **D. Claim Construction**

Pursuant to 37 C.F.R. § 42.100(b), a claim in an unexpired patent is given its broadest reasonable construction in light of the specification in which it appears.

*In re Cuozzo Speed Techs., LLC*, 793 F.3d 1268, 1278-79 (Fed. Cir. 2015), *aff’d* *Cuozzo Speed Techs. v. Lee*, 136 S. Ct. 2131, 579 U.S. \_\_\_\_ (2016).

**“frame”**: In IPR2015-00859 concerning related U.S. Pat. No. 8,365,742 (the “742 patent”), the Board construed the claim term “frame” under the applicable BRI standard to mean “rigid structure.” Ex. 1016, Paper 9 at pp. 7-8.

The ‘742 patent has substantially the same specification as the ‘548 patent.

Petitioner applies the Board’s construction for purposes of this Petition.

**“porous component”**: In IPR2015-00859, the Board construed the claim term “porous component” as recited in the claims of the ‘742 patent under the applicable BRI standard 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.” *Id.* at 10. Petitioner applies the Board’s construction for purposes of this Petition.

**“an elongated cylindrical housing”**: The limitation “an elongated cylindrical housing” appears in claims 1-14 of the ‘548 patent. In a prior wave of litigations involving the related ‘742 patent, the Patent Owner asserted that “housing” required no construction, or alternatively, means “a casing.” The Defendants contended that “housing” means “a one-piece shell.” The district court ruled that “housing” “need not be construed, other than to specify that it need not be a ‘one-piece shell.’” *Fontem Ventures B.V. et al. v. NJOY, Inc. et al.*, No. 2:14-cv-01645 (C.D. Cal., filed March 5, 2014). Ex. 1017, Rulings on Claims Construction (DI-65) at 8-10. For purposes of this Petition, and under the BRI claim construction standard applicable here, Petitioner construes “housing” consistent with the district court’s ruling that the term “housing” is not limited to “a one-piece shell.”

**E. U.S. 2009/0095311 Anticipates Claims 1-14 of the ‘548 Patent**

Claims 1-14 of the ‘548 patent are anticipated by U.S. 2009/0095311 (Ex. 1002; “‘311 publication”). The ‘311 publication was published on April 16, 2009, which is more than one year prior to the earliest filing date to which claims 1-14 of the ‘548 patent are entitled. As shown in the claim chart below, and as further explained in the accompanying Declaration of Dr. Sturges, the ‘311 publication discloses each and every limitation of claims 1-14. *See* Ex. 1015 at ¶¶ 23-59.

The preamble of claim 1 recites “[a]n electronic cigarette.” To the extent that the preamble is considered a claim limitation, the ‘311 publication discloses an electronic cigarette.

<b>Claim 1</b>	<b>The ‘311 publication</b>
1. <b>[preamble]</b> An electronic cigarette, comprising:	“The present invention relates to an electronic cigarette, in particular, an aerosol electronic cigarette that doesn't contain tar but nicotine.” Ex. 1002 at para. [0001], ll. 1-3.  “FIG. 1 is the side section view of the electronic cigarette of this invention.” Ex. 1002 at para. [0038], ll. 1-2.

Claim 1 recites “a battery assembly having a cylindrical battery and an operating indicator.” The ‘311 publication discloses a battery assembly having a battery (“the battery assembly includes the battery, and the operating indicator (1), electronic circuit board (4), and airflow sensor (5), which are connected with the battery”) and an operating indicator (“operating indicator (1)”). Ex. 1002 at para.

[0064], ll. 1-4. As shown in Figs. 1, 3 and 4, the claimed electronic cigarette, and thus the battery disposed therein, is cylindrical. Specifically, Figures 3 and 4 illustrate axial and side section view of the cigarette bottle assembly, respectively, and demonstrate that the rectangular side views in the figures represent cylindrical components. *Id.* at para. [0040]-[0041]; Figs. 3, 4.

Claim 1	The '311 publication
<p>[a] a battery assembly having a cylindrical battery and an operating indicator;</p>	<div data-bbox="630 667 1360 865" data-label="Image"> </div> <p>Ex. 1002 at Fig. 1.</p> <div data-bbox="792 982 1198 1234" data-label="Image"> </div> <p>Figure 3</p> <p><i>Id.</i> at Fig. 3.</p> <div data-bbox="784 1428 1174 1606" data-label="Image"> </div> <p>Figure 4</p> <p><i>Id.</i> at Fig. 4.</p> <p>“The additional features of this invention are as follows: the said battery assembly includes the battery, and the</p>

	<p>operating indicator, electronic circuit board, and airflow sensor, which are connected with the said battery; the signal output of the said airflow sensor is connected with the said electronic circuit board.” <i>Id.</i> 1002 at para. [0009], ll. 1-6.</p> <p>“The said battery is a rechargeable battery, which has a charging slot on it. The said operating indicator is a LED.” <i>Id.</i> 1002 at para. [0012], ll. 1-2.</p> <p>“As shown in FIG. 1-10, this utility model provides an aerosol electronic cigarette, which includes a battery assembly ...” <i>Id.</i> 1002 at para. [0063], ll. 1-5.</p> <p>“In this specific embodiment, the battery assembly includes the battery, and the operating indicator (1), electronic circuit board (4), and airflow sensor (5), which are connected with the battery.” <i>Id.</i> at para. [0064], ll. 1-4.</p>
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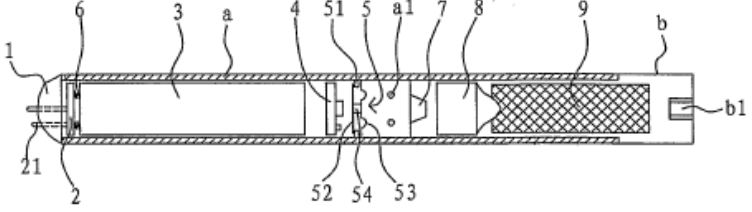
Claim 1 recites “an atomizer assembly in an elongated cylindrical housing, with the battery assembly electrically connected to the atomizer assembly, and with the cylindrical battery coaxial with the atomizer assembly.” The ‘311 publication discloses an atomizer assembly (“an atomizer (8), which includes a porous component (81) and a heating rod (82)”) in an elongated housing (“shell (a)”). Ex. 1002 at para. [0063], ll. 1-6; [0066], ll. 1-3. As shown in Figs. 1 and 3, the elongated housing (“shell (a)”) is cylindrical, and with the cylindrical battery coaxial with the atomizer assembly. *Id.* at Figs. 1 and 3. As shown in Figs. 20-21, the battery assembly is electrically connected to the atomizer assembly. *Id.* at para. [0071], ll. 13-19; Figs. 20 and 21.



Claim 1	The '311 publication
<p><b>[b]</b> an atomizer assembly in an elongated cylindrical housing, with the battery assembly electrically connected to the atomizer assembly, and with the cylindrical battery coaxial with the atomizer assembly;</p>	<div data-bbox="630 235 1360 445"> </div> <p>Ex. 1002 at Fig. 1.</p> <div data-bbox="841 550 1140 739"> </div> <p><i>Id.</i> at Fig. 3.</p> <div data-bbox="620 814 1360 1243"> </div> <p><i>Id.</i> at Fig. 20.</p> <p>“The purpose of this invention is fulfilled with the following technical solution: an aerosol electronic cigarette includes a battery assembly, an atomizer assembly ..., and also includes a shell.... The said battery assembly connects with the said atomizer assembly ...” <i>Id.</i> at para. [0008], ll. 1-7; Figs. 1-2, 20-21.</p> <p>“As shown in FIG. 1-10, this utility model provides an aerosol electronic cigarette, which includes a battery assembly, an atomizer assembly and a cigarette bottle assembly, and also includes a shell (a) ... The battery assembly connects with the atomizer assembly and both</p>

	<p>are located in the shell.” <i>Id.</i> at para. [0063], ll. 1-6.</p> <p>“As shown in FIG. 5-8, the atomizer assembly is an atomizer (8), which includes a porous component (81) and a heating rod (82).” <i>Id.</i> at para. [0066], ll. 1-3.</p> <p>“As shown in FIG. 20, the electric circuit is electrified, and the electronic switch circuit on the electronic circuit board (4) is electrified. Thus, the rechargeable battery (3) starts to electrify the electric heating rod (82) inside the atomizer (8), and at the same time, the LEDs, which are electrified by the rechargeable battery (3), emit light.” <i>Id.</i> at para. [0071], ll. 13-19.</p>
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Claim 1 recites “a liquid storage component in the housing.” The ‘311 publication discloses a liquid storage component (“perforated component for liquid storage (9)”) in the housing (“shell (a)”). Ex. 1002 at para. [0070], ll. 1-3; Figs. 1, 3-4.

Claim 1	The ‘311 publication
<p><b>[c]</b> a liquid storage component in the housing;</p>	 <p>Ex. 1002 at Fig. 1.</p> <p>“As shown in 3 and 4, the cigarette bottle assembly includes a hollow cigarette holder shell (b), and a perforated component for liquid storage (9) inside the shell (b).” <i>Id.</i> at para. [0070], ll. 1-3; Figs. 1, 3-4.</p>

Claim 1 recites “the atomizer assembly including a porous component set on a frame having a run-through hole.” The ‘311 publication discloses “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) []. The frame (82) has a run-through hole (821) on it.” Ex. 1002 at para. [0078], ll. 1-6; Figs. 17-18.

Claim 1	The ‘311 publication
<p><b>[d]</b> the atomizer assembly including a porous component set on a frame having a run-through hole;</p>	<div data-bbox="574 667 1406 1016"> </div> <p>Ex. 1002 at Figs. 17-18.</p> <p>“The said atomizer assembly includes a frame. The said porous component is set on the said frame. The said porous component is wound with heating wire. The said frame has a run-through hole on it.” <i>Id.</i> at para. [0021], ll. 1-5.</p> <p>“In the fifth preferred embodiment of this utility model, 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.” <i>Id.</i> at para. [0078], ll. 1-6.</p>

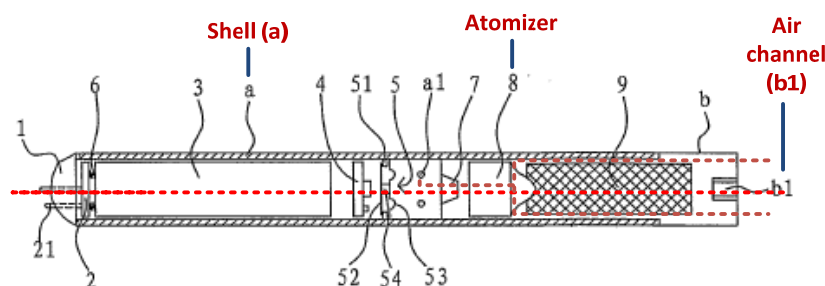
Claim 1 recites “a heating wire coil electrically connected to the battery.”

The ‘311 publication discloses a heating wire coil (“heating wire (83)”) electrically

connected to the battery (“The battery assembly connects with the atomizer assembly.”) Ex. 1002 at para. [0063], ll.5-6; para. [0078], ll. 1-5; Figs. 17-18.

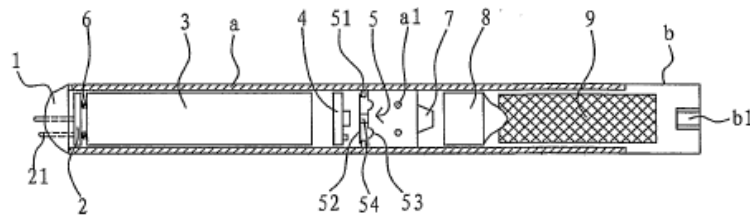
Claim 1	The ‘311 publication
<p>[e] a heating wire coil electrically connected to the battery;</p>	<div data-bbox="573 415 1406 760"> </div> <p>Ex. 1002 at Figs. 17-18.</p> <p>“The battery assembly connects with the atomizer assembly and both are located in the shell.” <i>Id.</i> at para. [0063], ll. 5-6.</p> <p>“As shown in FIG. 20, the electric circuit is electrified, and the electronic switch circuit on the electronic circuit board (4) is electrified. Thus, the rechargeable battery (3) starts to electrify the electric heating rod (82) inside the atomizer (8), and at the same time, the LEDs, which are electrified by the rechargeable battery (3), emit light ... In the meantime, the electric heating rod (82) is electrified by the rechargeable battery (3) under the control of electronic circuit board (4), to heat the fine drips for atomization.” <i>Id.</i> at para. [0071], ll. 13-29.</p> <p>“In the fifth preferred embodiment of this utility model, 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).” <i>Id.</i> at para. [0078], ll. 1-5.</p>

Claim 1 recites “an air flow path in the atomizer assembly parallel to a longitudinal axis of the housing, with the air flow path through the run-through hole to an outlet, with the heating wire coil wound on the porous component and in the air flow path and with the heating wire coil oriented perpendicular to the longitudinal axis.” As illustrated in the annotated figures and claim chart below, these features are found in the ‘311 publication. The ‘311 publication discloses an air flow path (brown dashed line shown in the annotated Fig. 1 below) in the atomizer assembly (“atomizer (8)”) parallel to a longitudinal axis (red dashed line shown in the annotated Fig. 1 below) of the housing (“shell (a)”), with the air flow path through the run-through hole (“run-through hole (821)”) to an outlet (“air channel (b1)”). As shown in Figs. 1 and 17-18, the heating wire coil (“heating wire (83)”) is wound on the porous component (“porous component (81)”) and in the air flow path and with the heating wire coil oriented perpendicular to the longitudinal axis. Ex. 1002 at para. [0063], ll. 1-5; para. [0070], ll. 12-14; para. [0071], ll. 19-36; para. [0078], ll. 6-8; Figs. 1, 17-18.

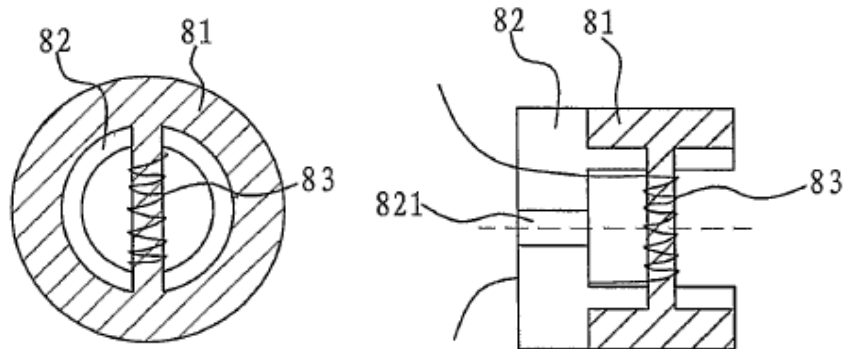


Claim 1	The ‘311 publication
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[f] an air flow path in the atomizer assembly parallel to a longitudinal axis of the housing, with the air flow path through the run-through hole to an outlet, with the heating wire coil wound on the porous component and in the air flow path and with the heating wire coil oriented perpendicular to the longitudinal axis; and



Ex. 1002 at Fig. 1.



*Id.* at Figs. 17-18.

“As shown in FIG. 1-10, this utility model provides an aerosol electronic cigarette, which includes a battery assembly, an atomizer assembly and a cigarette bottle assembly, and also includes a shell (a), which is hollow and integrally formed.” *Id.* at para. [0063], ll. 1-5.

“On one end surface of the cigarette holder shell (b), there is an air channel (b1) extending inward. The air channel (b1) is located in the center on the surface of one end of shell (b).” *Id.* at para. [0070], ll. 12-14.

“The air enters the normal pressure cavity through the air inlet (a1), passes the check valve (7) via the airflow passage in the airflow sensor (5), and flows to the negative pressure cavity (83) in the atomizer (8). Since the negative pressure cavity (83) provides the negative pressure compared with the outside, the air flow sprays into it, bringing the cigarette liquid from the porous component (81) to spray into the negative pressure cavity (83) in the form of fine drips. In the meantime, the electric heating rod (82) is electrified by the rechargeable battery (3) under the control of electronic circuit board (4), to heat the fine

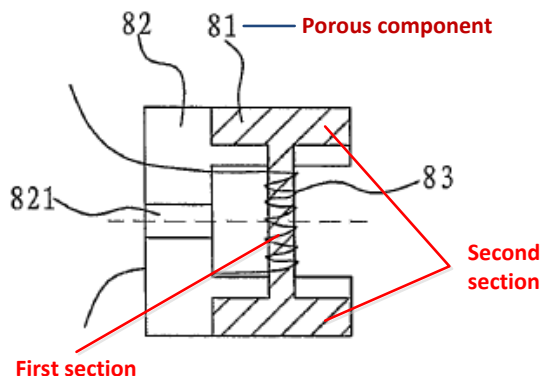
	<p>drips for atomization. After atomization, the big-diameter fine drips are re-absorbed by the porous component (81) under the action of vortex, while the small-diameter fine drips are suspended in the airflow to form gasoloid, which is discharged through the negative pressure cavity (83) and run-through hole (813), flows into the cigarette holder shell (b) of the cigarette bottle assembly, and is absorbed by the air channel (b1).” <i>Id.</i> at para. [0071], ll. 19-36.</p> <p>“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).” <i>Id.</i> at para. [0078], ll. 6-8.</p>
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Claim 1 recites “the porous component in contact with the liquid storage component.” The ‘311 publication discloses the porous component (“porous component (81)”) in contact with the liquid storage component (“perforated component for liquid storage (9)”). Ex. 1002 at para. [0071], ll. 1-4; [0078], ll. 8-10; Figs. 1-2, 17-19.

<b>Claim 1</b>	<b>The ‘311 publication</b>
<b>[g]</b> the porous component in contact with the liquid storage component.	<p>“As shown in FIG. 1-9, one end of the porous component (81) lies against one end surface of the said perforated component for liquid storage (9), and contacts the perforated component for liquid storage (9).” Ex. 1002 at para. [0071], ll. 1-4; Figs. 1-2, 17-19.</p> <p>“One end of the porous component (81) fits with the cigarette bottle assembly.” <i>Id.</i> at para. [0078], ll. 8-10.</p>

Claim 2 recites “with the porous component having a first section perpendicular to the longitudinal axis and having a second section parallel to the longitudinal axis.” As illustrated in the annotated Fig. 18 and claim chart below,

the ‘311 publication discloses these features. Ex. 1002 at para. [0078], ll. 1-8;  
Figs. 17-18.

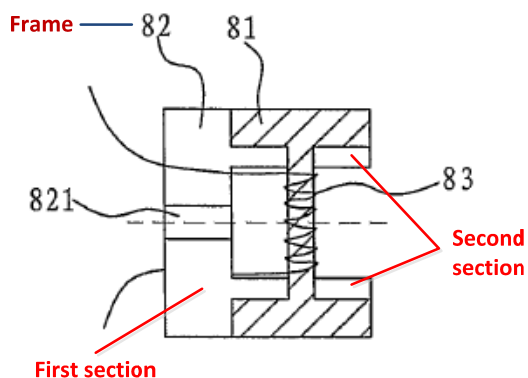


Claim 2	The ‘311 publication
<p>2. The electronic cigarette of claim 1 with the porous component having a first section perpendicular to the longitudinal axis and having a second section parallel to the longitudinal axis.</p>	<div data-bbox="574 848 1406 1192"> </div> <p>Ex. 1002 at Figs. 17-18.</p> <p>“[T]he atomizer assembly is an atomizer (8), which includes a frame (82), the porous component (81) set on the frame (82) ... 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).” <i>Id.</i> at para. [0078], ll. 1-8.</p>

Claim 3 recites “with the frame having a cylindrical first section and a second section, with the second section between the first section and the outlet, and with the second section longer than the first section.” As illustrated in the

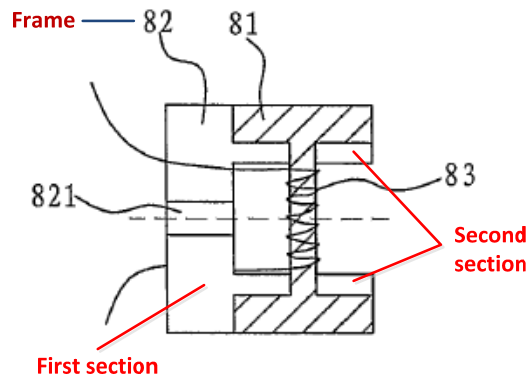


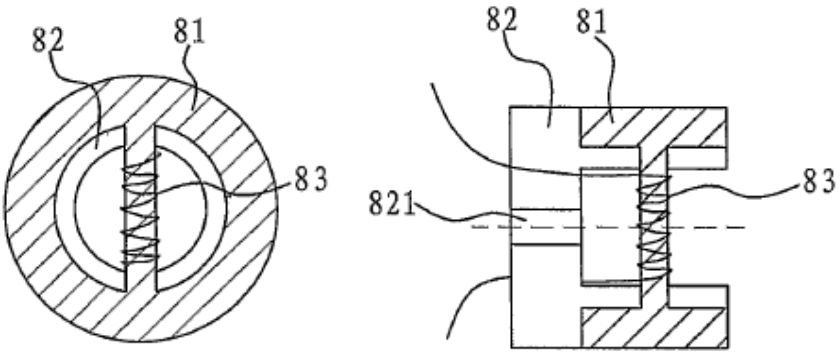
annotated Fig. 18 and claim chart below, the ‘311 publication discloses these features. Ex. 1002 at para. [0078], ll. 1-6; Figs. 17-18.



Claim 3	The ‘311 publication
<p>3. The electronic cigarette of claim 1 with the frame having a cylindrical first section and a second section, with the second section between the first section and the outlet, and with the second section longer than the first section.</p>	<div data-bbox="574 848 1406 1192"> </div> <p>Ex. 1002 at Figs. 17-18.</p> <p>“[T]he atomizer assembly is an atomizer (8), which includes a frame (82), the porous component (81) set on the frame (82) ... The frame (82) has a run-through hole (821) on it.” <i>Id.</i> at para. [0078], ll. 1-6.</p>

Claim 4 recites “wherein the first section of the frame is a cylindrical base section.” As illustrated in the annotated Fig. 18 and claim chart below, the ‘311 publication discloses that the first section of the frame (82) is a cylindrical base section. Ex. 1002 at para. [0078], ll. 1-6; Figs. 17-18.



Claim 4	The '311 publication
4. The electronic cigarette of claim 3 wherein the first section of the frame is a cylindrical base section.	 <p>Ex. 1002 at Figs. 17-18.</p>

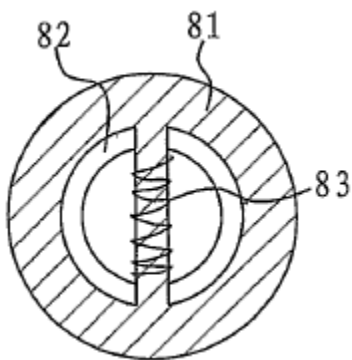
Claim 5 recites “with the battery assembly further including an air flow sensor.” The ‘311 publication discloses the battery assembly further including an air flow sensor (“airflow sensor (5)”). Ex. 1002 at para. [0064], ll. 1-4.

Claim 5	The '311 publication
5. The electronic cigarette of claim 1 with the battery assembly further including an air flow sensor.	<p>“In this specific embodiment, the battery assembly includes the battery, and ... airflow sensor (5), which are connected with the battery.” Ex. 1002 at para. [0064], ll. 1-4.</p>

Claim 6 recites “with the battery assembly further comprising an electronic circuit board electrically connected to the air flow sensor.” The ‘311 publication discloses the battery assembly further comprising an electronic circuit board (“electronic circuit board (4)”) electrically connected to the air flow sensor (“airflow sensor (5)”) (“the signal output of the said airflow sensor is connected with the said electronic circuit board”). Ex. 1002 at para. [0064], ll. 1-6.

Claim 6	The ‘311 publication
6. The electronic cigarette of claim 5 with the battery assembly further comprising an electronic circuit board electrically connected to the air flow sensor.	“In this specific embodiment, the battery assembly includes the battery, and ... electronic circuit board (4), and airflow sensor (5), which are connected with the battery ... The signal output of the airflow sensor (5) is connected with the said electronic circuit board (4).” Ex. 1002 at para. [0064], ll. 1-6.

Claim 7 recites “wherein the porous component is cylindrical.” As shown in Fig. 17, the ‘311 publication discloses that the porous component (81) is cylindrical. Ex. 1002 at Fig. 17.

Claim 7	The ‘311 publication
7. The electronic cigarette of claim 1 wherein the porous component is cylindrical.	 <p>The diagram shows a circular cross-section of a component. A central vertical channel is labeled 82. Inside this channel, there is a coiled spring or mesh structure labeled 83. The outer wall of the circular component is labeled 81, representing the porous component.</p>

	Ex. 1002 at Figs. 17-18.
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The preamble of claim 8 recites “[a]n electronic cigarette.” To the extent that the preamble is considered a claim limitation, the ‘311 publication discloses an electronic cigarette. *See* claim 1 above.

Claim 8 recites “a battery assembly having a cylindrical battery and an operating indicator.” The ‘311 publication discloses this limitation. *See* claim 1[a] above.

Claim 8 recites “an atomizer assembly in an elongated cylindrical housing having a longitudinal axis, with the battery assembly electrically connected to the atomizer assembly, and with the cylindrical battery coaxial with the atomizer assembly.” For the reasons discussed in claim 1[b] above, the ‘311 publication discloses “an atomizer assembly in an elongated cylindrical housing, with the battery assembly electrically connected to the atomizer assembly, and with the cylindrical battery coaxial with the atomizer assembly.” As shown in Fig. 1, the ‘311 publication discloses that the elongated cylindrical housing (“shell (a)”) has a longitudinal axis. Ex. 1002 at Fig. 1.

<b>Claim 8</b>	<b>The ‘311 publication</b>
<b>[b]</b> an atomizer assembly in an elongated cylindrical housing having a longitudinal axis,	<i>See</i> claim 1[b] above for evidence.

with the battery assembly electrically connected to the atomizer assembly, and with the cylindrical battery coaxial with the atomizer assembly;	
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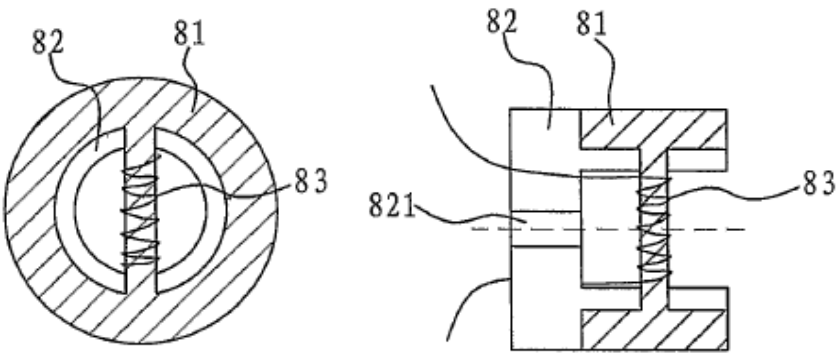
Claim 8 recites “the atomizer assembly including a porous component having a first section perpendicular to the longitudinal axis and a second section parallel to the longitudinal axis, with the porous component set on a frame having a run-through hole.” For the reasons discussed in claim 1[d] above, the ‘311 publication discloses “the atomizer assembly including a porous component, with the porous component set on a frame having a run-through hole.”

For the reasons discussed in claim 2 above, the ‘311 publication discloses “a porous component having a first section perpendicular to the longitudinal axis and a second section parallel to the longitudinal axis.”

<b>Claim 8</b>	<b>The ‘311 publication</b>
<b>[c]</b> the atomizer assembly including a porous component having a first section perpendicular to the longitudinal axis and a second section parallel to the longitudinal axis, with the porous component set on a	<i>See</i> claim 1[d] and claim 2 above for evidence.

frame having a run-through hole;	
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Claim 8 recites “a heating wire coil wound on the first section of the porous component and electrically connected to the battery.” The ‘311 publication discloses a heating wire coil (“heating wire (83)”) wound on the first section of the porous component (81) and electrically connected to the battery (“The battery assembly connects with the atomizer assembly.” Ex. 1002 at para. [0063], ll. 5-6; para. [0078], ll. 1-5; Figs. 17-18.

Claim 8	The ‘311 publication
[d] a heating wire coil wound on the first section of the porous component and electrically connected to the battery;	 <p>Ex. 1002 at Figs. 17-18.</p> <p>“The battery assembly connects with the atomizer assembly and both are located in the shell.” <i>Id.</i> at para. [0063], ll. 5-6.</p> <p>“As shown in FIG. 20, the electric circuit is electrified, and the electronic switch circuit on the electronic circuit board (4) is electrified. Thus, the rechargeable battery (3) starts to electrify the electric heating rod (82) inside the atomizer (8), and at the same time, the LEDs, which are electrified by the rechargeable battery (3), emit light ... In the meantime, the electric heating rod (82) is electrified by the rechargeable battery (3) under the control of electronic</p>

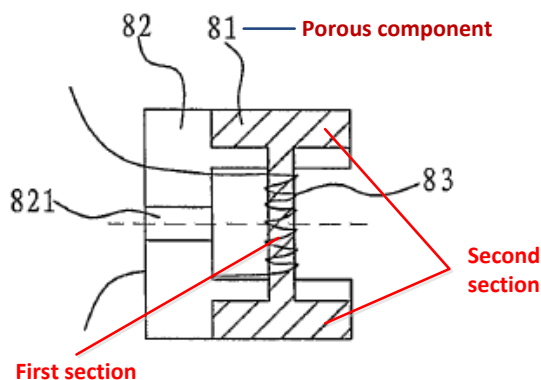
	<p>circuit board (4), to heat the fine drips for atomization.” <i>Id.</i> at para. [0071], ll. 13-29.</p> <p>“In the fifth preferred embodiment of this utility model, as shown in FIGS. 17 and 18, the atomizer assembly is an atomizer (8), which includes a frame (82), the porous component (81) set on the frame (82), and the heating wire (83) wound on the porous component (81).” <i>Id.</i> at para. [0078], ll. 1-5.</p>
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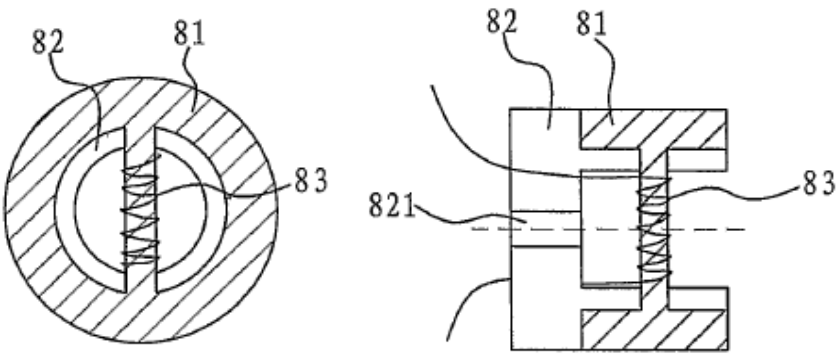
Claim 8 recites “an air flow path in the atomizer assembly parallel to the longitudinal axis, with the air flow path through the run-through hole to an outlet, and the heating wire coil in the air flow path and oriented perpendicular to the longitudinal axis.” The ‘311 publication discloses this limitation. *See* claim 1[f] above.

Claim 8 recites “a liquid storage component in the housing in contact with the porous component.” The ‘311 publication discloses the liquid storage component (“perforated component for liquid storage (9)”) in the housing (“shell (a)”) in contact with the porous component (“porous component (81)”). Ex. 1002 at para. [0071], ll. 1-4; [0078], ll. 8-10; Figs. 1-2, 17-19.

<b>Claim 8</b>	<b>The ‘311 publication</b>
<b>[f]</b> a liquid storage component in the housing in contact with the porous component.	<p>“As shown in FIG. 1-9, one end of the porous component (81) lies against one end surface of the said perforated component for liquid storage (9), and contacts the perforated component for liquid storage (9).” Ex. 1002 at para. [0071], ll. 1-4; Figs. 1-2, 17-19.</p> <p>“One end of the porous component (81) fits with the cigarette bottle assembly.” <i>Id.</i> at para. [0078], ll. 8-10.</p>

Claim 9 recites “with the second section of the porous component on opposite sides of the first section of the porous component.” As illustrated in the annotated Fig. 18 and claim chart below, the ‘311 publication discloses these features. Ex. 1002 at para. [0078], ll. 1-8; Figs. 17-18.



Claim 9	The ‘311 publication
<p>9. The electronic cigarette of claim 8 with the second section of the porous component on opposite sides of the first section of the porous component.</p>	 <p>Ex. 1002 at Figs. 17-18.</p>

Claim 10 recites “with the frame having a cylindrical first section and a second section, with the second section between the first section and the outlet, and with the second section longer than the first section.” The ‘311 publication discloses this limitation. See claim 3 above.



The preamble of claim 11 recites “[a]n electronic cigarette.” To the extent that the preamble is considered a claim limitation, the ‘311 publication discloses an electronic cigarette. *See* claim 1 above.

Claim 11 recites “an atomizer assembly and a liquid storage component in an elongated cylindrical housing having a longitudinal axis.” The ‘311 publication discloses an atomizer assembly (“atomizer (8), which includes a porous component (81) and a heating rod (82)”) and a liquid storage component (“perforated component for liquid storage (9)”) in an elongated housing (“shell (a)”) having a longitudinal axis. Ex. 1002 at para. [0063], ll. 1-6; [0066], ll. 1-3; [0070], ll. 1-3. As shown in Figs. 1 and 3, the elongated housing (“shell (a)”) is cylindrical. *Id.* at Figs. 1 and 3.

Claim 11	The ‘311 publication
<p><b>[a]</b> an atomizer assembly and a liquid storage component in an elongated cylindrical housing having a longitudinal axis;</p>	<div data-bbox="630 1178 1360 1381" data-label="Image"> </div> <p>Ex. 1002 at Fig. 1.</p> <div data-bbox="841 1486 1140 1675" data-label="Image"> </div> <p><i>Id.</i> at Fig. 3.</p> <p>“As shown in FIG. 1-10, this utility model provides an aerosol electronic cigarette, which includes a battery</p>

	<p>assembly, an atomizer assembly and a cigarette bottle assembly, and also includes a shell (a) ... The battery assembly connects with the atomizer assembly and both are located in the shell.” <i>Id.</i> at para. [0063], ll. 1-6.</p> <p>“As shown in FIG. 5-8, the atomizer assembly is an atomizer (8), which includes a porous component (81) and a heating rod (82).” <i>Id.</i> at para. [0066], ll. 1-3.</p> <p>“As shown in 3 and 4, the cigarette bottle assembly includes a hollow cigarette holder shell (b), and a perforated component for liquid storage (9) inside the shell (b).” <i>Id.</i> at para. [0070], ll. 1-3; Figs. 1, 3-4.</p>
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Claim 11 recites “battery assembly electrically connected to the atomizer assembly, and with the battery assembly including a cylindrical battery coaxial with the atomizer assembly.” The ‘311 publication discloses this limitation. *See* claim 1[a]-[b] above.

Claim 11 recites “the atomizer assembly including: a frame comprising a cylindrical base having a run-through hole.” As shown in Figs. 17-18, the ‘311 publication discloses the atomizer assembly (“atomizer (8)”) including a frame (82) comprising a cylindrical base having a run-through hole (821). *Ex.* 1002 at para. [0078], ll. 1-6; Figs. 17-18.

Claim 11	The ‘311 publication
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<p><b>[c]</b> the atomizer assembly including: a frame comprising a cylindrical base having a run-through hole;</p>	<div data-bbox="574 184 1406 529"> </div> <p>Ex. 1002 at Figs. 17-18.</p> <p>“In the fifth preferred embodiment of this utility model, as shown in FIGS. 17 and 18, the atomizer assembly is an atomizer (8), which includes a frame (82) ... The frame (82) has a run-through hole (821) on it.” <i>Id.</i> at para. [0078], ll. 1-6.</p>
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Claim 11 recites “the atomizer assembly including [] a fiber member in contact with the liquid storage component.” The ‘311 publication discloses the atomizer assembly (“atomizer (8)”) including a fiber member (“porous component (81)”) in contact with the liquid storage component (“perforated component for liquid storage (9)”). Ex. 1002 at para. [0071], ll. 1-4; [0078], ll. 8-10; Figs. 1-2, 17-19. The ‘311 publication discloses that the porous component (81) can be made of fiber materials, such as stainless steel fiber felt. *Id.* at para. [0022], ll. 1-3; para. [0066], ll. 18-22.

Claim 11	The ‘311 publication
<p><b>[d]</b> the atomizer assembly including: ...; a fiber member in contact with the</p>	<p>“As shown in FIG. 1-9, one end of the porous component (81) lies against one end surface of the said perforated component for liquid storage (9), and contacts the perforated component for liquid storage (9).” Ex. 1002 at para. [0071], ll. 1-4; Figs. 1-2, 17-19.</p>

liquid storage component;	<p>“The said porous component is made of foamed nickel, stainless steel fiber felt, macromolecular polymer foam or foamed ceramics.” <i>Id.</i> at para. [0022], ll. 1-3.</p> <p>“The porous component (81) is made of foamed nickel, stainless steel fiber felt, macromolecular polymer foam or foamed ceramics, providing the remarkable capabilities in liquid absorption and diffusion, and the ability to absorb the liquid stored in the cigarette bottle assembly.” <i>Id.</i> at para. [0066], ll. 18-22.</p> <p>“One end of the porous component (81) fits with the cigarette bottle assembly.” <i>Id.</i> at para. [0078], ll. 8-10.</p>
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Claim 11 recites “the atomizer assembly including [] a heating wire coil wound on the fiber member and oriented perpendicular to the longitudinal axis, and the heating wire coil electrically connected to the battery, with the fiber member moving liquid from the liquid storage component to the heating wire coil by capillary action.” The ‘311 publication discloses the atomizer assembly (“atomizer (8)”) including a heating wire coil (“heating wire (83)”) wound on the fiber member (“porous component (81)”). As shown in Figs. 1 and 17-18, the heating wire coil (“heating wire (83)”) is oriented perpendicular to the longitudinal axis of the elongated cylindrical housing (“shell (a)”). Ex. 1002 at para. [0078], ll. 1-8; Figs. 1, 17-18. The ‘311 publication discloses the heating wire coil (“heating wire (83)”) electrically connected to the battery (“The battery assembly connects with the atomizer assembly.”) *Id.* at para. [0063], ll. 5-6. The ‘311 publication

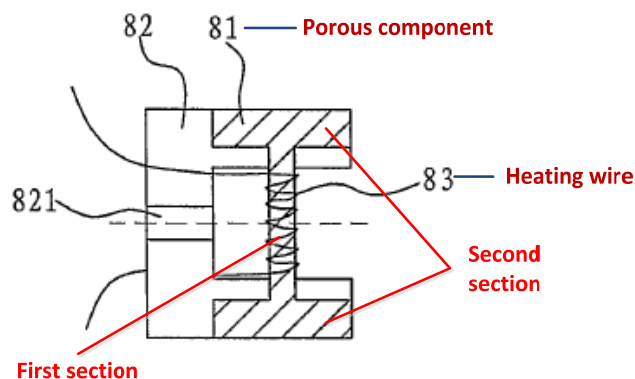
discloses that the fiber member (“porous component (81)”) moving liquid from the liquid storage component (“perforated component for liquid storage (9)”) to the heating wire coil (“heating wire (83)”) by capillary action. *Id.* at para. [0071], ll. 40-44.

Claim 11	The ‘311 publication
<p>[e] the atomizer assembly including:          ...;          a heating wire coil wound on the fiber member and oriented perpendicular to the longitudinal axis, and the heating wire coil electrically connected to the battery, with the fiber member moving liquid from the liquid storage component to the heating wire coil by capillary action; and</p>	<div data-bbox="625 577 1372 787"> </div> <p>Ex. 1002 at Fig. 1.</p> <div data-bbox="576 892 1404 1249"> </div> <p><i>Id.</i> at Figs. 17-18.</p> <p>“The battery assembly connects with the atomizer assembly and both are located in the shell.” <i>Id.</i> at para. [0063], ll. 5-6.</p> <p>“The 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.” <i>Id.</i> at para. [0071], ll. 40-44.</p> <p>“[T]he 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</p>

	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).” <i>Id.</i> at para. [0078], ll. 1-8.
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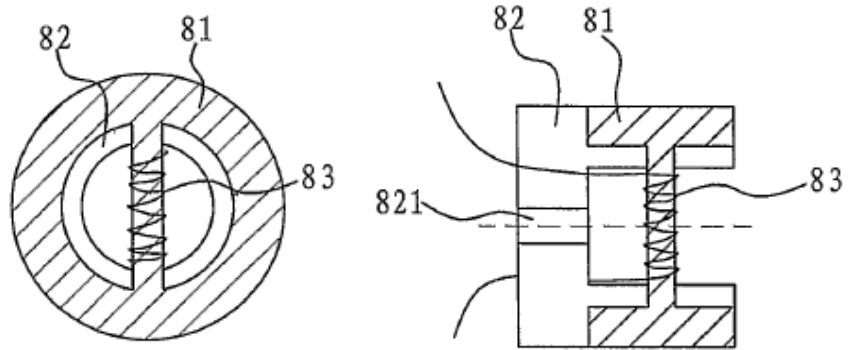
Claim 11 recites “an air flow path parallel to the longitudinal axis through the atomizer assembly, with the air flow path passing through the run-through hole, and with the heating wire coil in the air flow path and perpendicular to the longitudinal axis.” The ‘311 publication discloses this limitation. *See* claim 1[f] above.

Claim 12 recites “with a first part of the fiber member perpendicular to the longitudinal axis and the heating wire coil wrapped on the first part.” As illustrated in the annotated Fig. 18 and claim chart below, the ‘311 publication discloses a first part of the fiber member (“porous component (81)”) perpendicular to the longitudinal axis and the heating wire coil (“heating wire (83)”) wrapped on the first part. Ex. 1002 at para. [0078], ll. 1-8; Figs. 17-18.



<b>Claim 12</b>	<b>The ‘311 publication</b>
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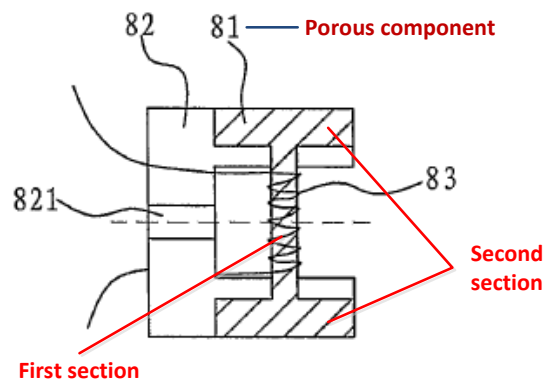
12. The electronic cigarette of claim 11 with a first part of the fiber member perpendicular to the longitudinal axis and the heating wire coil wrapped on the first part.

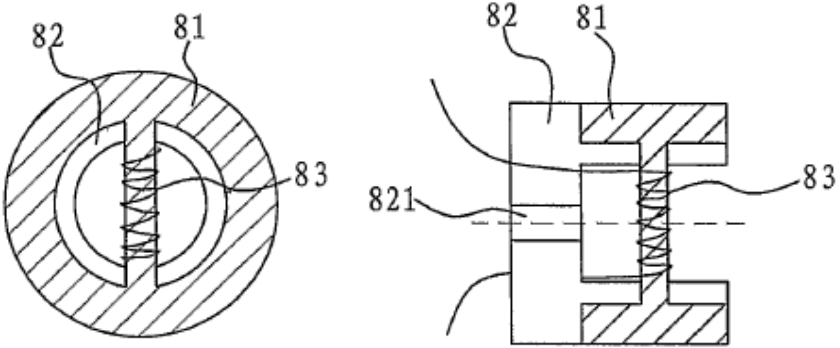


Ex. 1002 at Figs. 17-18.

“[T]he atomizer assembly is an atomizer (8), which includes a frame (82), the porous component (81) set on the frame (82) ... 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).” *Id.* at para. [0078], ll. 1-8.

Claim 13 recites “with the fiber member having a first section perpendicular to the longitudinal axis and having a second section parallel to the longitudinal axis.” As illustrated in the annotated Fig. 18 and claim chart below, the ‘311 publication discloses the fiber member (“porous component (81)”) having a first section perpendicular to the longitudinal axis and having a second section parallel to the longitudinal axis. Ex. 1002 at para. [0078], ll. 1-8; Figs. 17-18.



Claim 13	The '311 publication
<p>13. The electronic cigarette of claim 11 with the fiber member having a first section perpendicular to the longitudinal axis and having a second section parallel to the longitudinal axis.</p>	 <p>Ex. 1002 at Figs. 17-18.</p>

Claim 14 recites “with the frame having a cylindrical first section and a second section, with the second section between the first section and the outlet, and with the second section longer than the first section.” The ‘311 publication discloses this limitation. *See* claim 3 above.

#### F. Priority Date of Claims 1-14 of the ‘548 Patent

As shown above, the ‘311 publication discloses each and every limitation of claims 1-14 of the ‘548 patent, and was published on April 16, 2009, which is more than one year before the filing date of the ‘548 patent (April 3, 2014). Thus, to avoid anticipation by the ‘311 publication under § 102(b), the Patent Owner has the burden of demonstrating that claims 1-14 are entitled to a priority date earlier than April 17, 2010. *See Research Corp. Techs., Inc. v. Microsoft Corp.*, 627 F.3d 859, 870 (Fed. Cir. 2010) (“The challenger has the burden of going forward with invalidating prior art . . . . The patentee then has the burden of going forward with evidence to the contrary, *i.e.*, the patentee must show that the prior art does not



actually invalidate the patent or that it is not prior art because the asserted claim is entitled to the benefit of an earlier filing date.”) (citations omitted); *see also Core Survival, Inc. v. S & S Precision, LLC*, PGR2015-00022, Paper 8 (Feb. 19, 2016) at 8. As explained below, the Patent Owner cannot meet this burden because the only sufficiently early priority application of the ‘548 patent, namely, the great grandparent ‘818 application (which was filed on October 29, 2008) does not provide written description support for claims 1-14 of the ‘548 patent.

### **1. The Board May Rule on Priority Issues**

It is within the Board’s statutory authority to rule on priority issues relating to whether an earlier application supports the issued claims of a later application. *See, e.g., Samsung Electronics Co., Ltd., et al. v. Affinity Labs. Of Texas, LLC*, IPR2014-01181, Paper 36 (Final Written Decision, Jan. 28, 2016) at 49-54 (rejecting Patent Owner’s argument that the Board cannot determine whether the involved patent is entitled to the benefit of an earlier filing date and finding that challenged claims were not entitled to the parent application’s filing date); *Munchkin, Inc., et al. v. Luv N’ Care, Ltd.*, IPR2013-00072, Paper 28 (Final Written Decision, Apr. 21, 2014), *aff’d*, 599 Fed. Appx. 958 (Fed. Cir. 2015) (affirming PTAB decision that challenged claims were not entitled to earlier priority date of parent application).

## 2. Legal Standards

“[A] patent’s claims are not entitled to an earlier priority date merely because the patentee claims priority.” *In re NTP, Inc.*, 654 F.3d 1268, 1276-77 (Fed. Cir. 2011). “It is elementary patent law that a patent application is entitled to the benefit of the filing date of an earlier filed application only if the disclosure of the earlier application provides support for the claims of the later application, as required by 35 U.S.C. § 112.” *PowerOasis, Inc.*, 522 F.3d at 1306 (citations omitted). “To satisfy the written description requirement the disclosure of the prior application must convey with reasonably clarity to those skilled in the art that, as of the filing date sought, [the inventor] was in possession of the invention.” *Id.* at 1306 (citations omitted).

“It is not sufficient for purposes of the written description requirement of § 112 that the disclosure, when combined with the knowledge in the art, would lead one to speculate as to modification that the inventor might have envisioned, but failed to disclose.” *Lockwood v. Am. Airlines, Inc.*, 107 F.3d 1565, 1572 (Fed. Cir. 1997). “The purpose of the written description requirement is to ensure that the scope of the right to exclude, as set forth in the claims, does not overreach the scope of the inventor’s contribution to the field of art as described in the patent specification.” *ICU Med., Inc. v. Alaris Med. Sys., Inc.*, 558 F.3d 1368, 1376 (Fed. Cir. 2009) (citations omitted). Thus, “[e]ntitlement to a filing date does to extend

to subject matter which is not disclosed, but would be obvious over what is expressly disclosed.” *PowerOasis, Inc.*, 522 F.3d at 1306.

As the Federal Circuit has repeatedly confirmed, a narrow disclosure will not support later-filed broad claims. *See, e.g., Research Corps. Techs.*, 627 F.3d at 871-872 (later filed claims that were not limited to a “blue noise mask” not entitled to priority date of parent application which was “limited to a blue noise mask.”); *ICU Med.*, 558 F.3d at 1377-78 (“spikeless” claims “added years later during prosecution” were not supported by the specification which “describe[d] only medical valves with spikes.”); *Tronzo v. Biomet, Inc.*, 156 F.3d 1154, 1158-60 (Fed. Cir. 1998) (the claimed generically shaped cups not entitled to filing date of the parent application that “disclosed only a trapezoidal cup and nothing more.”).

The written description requirement is implicated when the applicant attempts during prosecution to broaden a later-in-time child disclosure in order to cover subject matter that is not described in the parent application. *See, e.g., PowerOasis, Inc.*, 522 F.3d at 1307-10 (“The 2000 CIP Application added language describing a vending machine with a user interface located remotely from the vending machine, such as on a user’s laptop. . . . Because none of this support was present in the [parent] Application and because the [parent] Application did not disclose a customer interface apart from the vending machine, the asserted claims are only entitled to the 2000 CIP Application filing date of June 15, 2000.”).

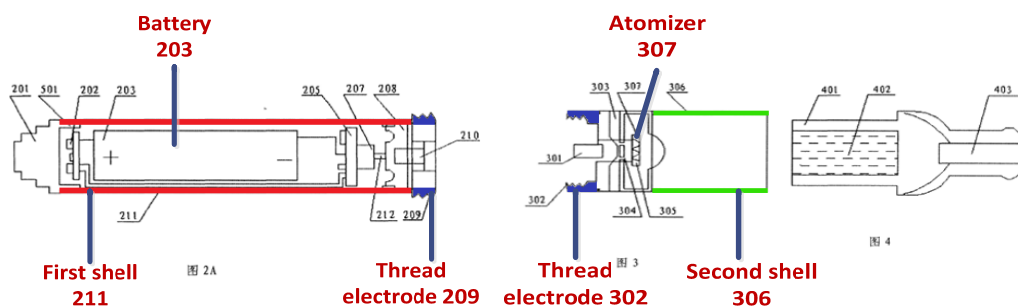
Broadening can also occur when the applicant removes limiting language from the specification. *See, e.g., Anascape*, 601 F.3d at 1338-1341 (“A description can be broadened by removing limitations. The limitation to a single input member capable of movement in six degrees of freedom was removed, in filing the ‘700 application, and new claims were provided of commensurately broad scope. This is classical new matter. . . . [T]he district court erred in its ruling that, as construed, the broadened scope of the ‘700 claims is entitled to the filing date of the [parent] ‘525 patent.”).

### **3. Statement of Facts**

The lack of written description support in the great grandparent ‘818 application for broad claims 1-14 of the ‘548 patent is illustrated by the sequence of event summarized below:

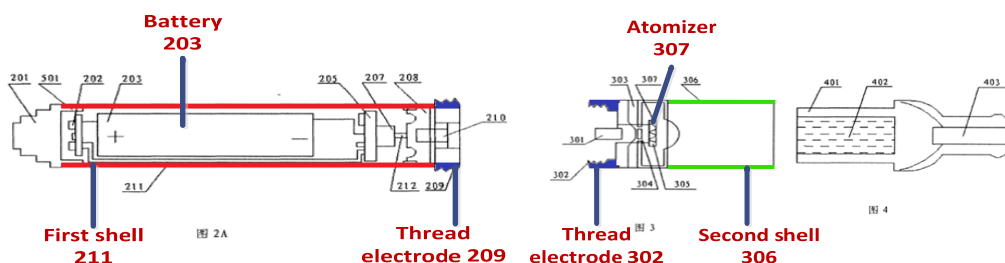
**May 16, 2006 – Chinese Priority Application:** The Applicant filed a Chinese priority application, CN 200620090805.0, Ex. 1003; English translation, Ex. 1004. In relevant part, the Chinese priority application describes an electronic cigarette where the battery assembly and the atomizer assembly are located in separate shells. As illustrated in the annotated figures below, the battery assembly is located in a “first shell” 211, the atomizer assembly is located in a “second shell” 306, and a cigarette liquid bottle 401 is located in a third piece, a cigarette bottle assembly. Ex. 1004 at 4:37-40; 5:16-17, 29-30; Ex. 1003 at Figs. 2A, 3-4.

The first and second shells are “connected through the thread electrode” (see 209, 302), and the cigarette bottle assembly is plugged into an end of “second shell” 306. Ex. 1004 at 4:32-34; 5:30-32; Ex. 1003 at Figs. 2A, 3-4.



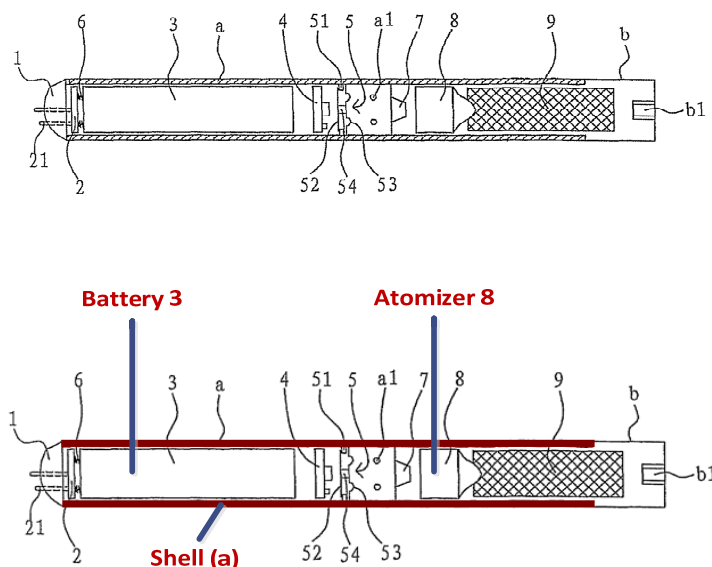
**May 15, 2007 – PCT applications:** The Applicant filed two PCT applications claiming priority to the above-referenced Chinese application, PCT/CN2007/001575 (“PCT ‘575”; Ex. 1005; English translation, Ex. 1006) and PCT/CN2007/001576 (“PCT ‘576”; Ex. 1007; English translation, Ex. 1008). Notably, the disclosures of PCT ‘575 and PCT ‘576 are materially different.

PCT ‘576, consistent with the Chinese priority application, describes an electronic cigarette in which the battery assembly and the atomizer assembly are located in separate shells. Ex. 1008 at Figs. 2A, 3-4.



In contrast, PCT ‘575, which the Applicant later nationalized as the great grandparent ‘818 application, describes and illustrates the “invention” as an

electronic cigarette where the battery assembly and atomizer assembly are located together in a one-piece shell (*i.e.*, shell (a)). *See e.g.*, Ex. 1005 at Fig. 1 (unannotated and annotated below).

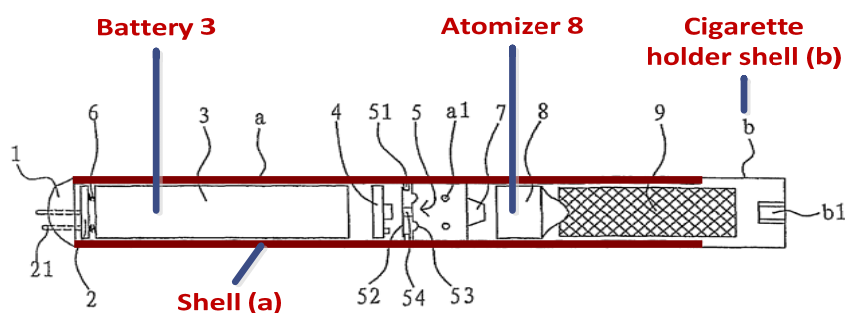


**October 29, 2008 – Great Grandparent ‘818 application:** Seeking patent protection for the electronic cigarette described in PCT ‘575, the Applicant nationalized PCT ‘575 as the great grandparent ‘818 application. Ex. 1009.<sup>2</sup> The great grandparent ‘818 application consistently describes the invention as an electronic cigarette in which the battery assembly and the atomizer assembly are located together in the same, one-piece shell (a).

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<sup>2</sup> Although the Application Data Sheet claims priority to the Chinese priority application (*Id.* at 4), the Applicant did not amend the specification to include disclosure from the Chinese priority application into the ‘818 specification.

Starting with the Abstract, the invention is described in relevant part as “An aerosol electronic cigarette includes a battery assembly, an atomizer assembly and a cigarette bottle assembly and also includes a **shell (a), which is hollow and integrally formed. Said battery assembly connects with said atomize assembly and both are located in said shell (a).** . . .” Ex. 1009 at 12.<sup>3</sup> The ‘818 application further explains that a cigarette bottle assembly is detachably located in shell (a) via “the cigarette holder shell (b) [that] plugs into shell (a).” *Id.* at 20, 4<sup>th</sup> paragraph, l. 6.



The ‘818 application further states that “the purpose of this invention” is to simplify the “complicated” three-section structure of the prior art electronic cigarettes, and that a “benefit” of the “invention” is that there is “just one connection between two parts” (*i.e.*, between one-piece shell (a) and cigarette holder shell (b)):

“The electronic cigarettes currently available on the market . . . are complicated in structure. Their cigarette bodies can be roughly

<sup>3</sup> Emphasis added unless otherwise noted.

divided into three sections, which have to be connected through via plugging or thread coupling before use.”

Ex. 1009 at 13, last paragraph. Thus, and as explained in the “Contents of the Invention”:

“The purpose of this **invention** is fulfilled with the following technical solution: an aerosol electronic cigarette includes a battery assembly, an atomizer assembly and a cigarette bottle assembly, and **also includes a shell, which is hollow and integrally formed. The said battery assembly connects with said atomizer assembly and both are located in said shell.**”

*Id.* at 14, 2<sup>nd</sup> paragraph. The ‘818 application then touts that a benefit of “this invention” is an electronic cigarette with a “very simple structure” that has “just one connection between two parts,” namely, between the shell (a) and the cigarette holder shell (b):

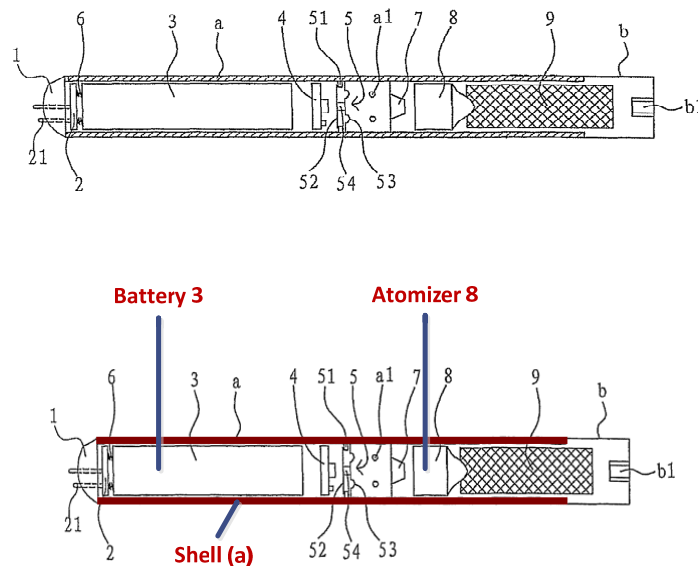
“This **invention** will bring the following benefits: . . . (2) For this **invention, the battery assembly and atomizer assembly are directed installed inside the shell, and then connected with the cigarette bottle assembly. That is, there is just one connection between two parts,** resulting in a very simple structure. For use or



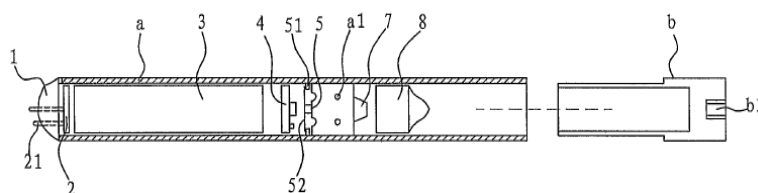
change, you just need to plug the cigarette holder into the shell, providing great convenience.”

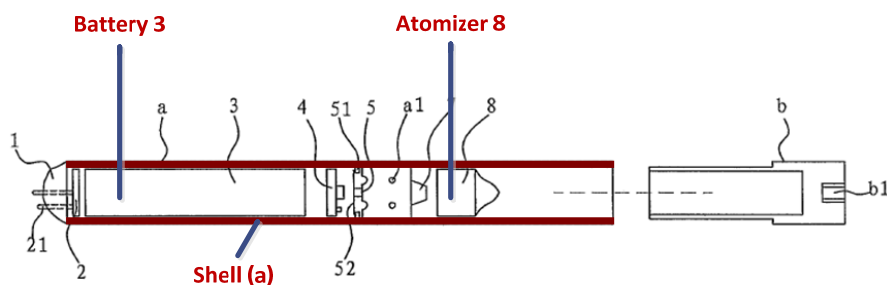
Ex. 1009 at 16, last paragraph.

In order for there to be “just one connection between two parts” (*i.e.*, between the shell and the cigarette bottle assembly), the shell in which the battery assembly and the atomizer assembly are installed must be a one-piece shell. This is further confirmed by the Description of the Drawings, which refer to Figures 1-2 as schematics of “the electronic cigarette of this **invention**” as including a one-piece shell (a) in which both the battery assembly and atomizer assembly are located. *Id.* at 17; 27 (Figs 1-2)



Ex. 1009 at 17, 27 (Fig. 1)





Ex. 1009 at 17, 27 (Fig. 2)

Moreover, every embodiment of the “invention” described in the Specific Mode for Carrying Out The Invention contemplates a shell (a) in which both the battery assembly and the atomizer assembly reside. Ex. 1015 at ¶ 68; Ex. 1009 at 18-19 (“As shown in Figure 1-10, this utility model provides an aerosol electronic cigarette, which includes a battery assembly, an atomizer assembly and a cigarette bottle assembly, and also includes a **shell (a)**, which is **hollow and integrally formed**. **The battery assembly connects with the atomizer assembly and both are located in the shell.**”); *id.* at 20 (“Of this embodiment, **the battery assembly and atomizer assembly are mutually connected and then installed inside the integrally formed shell (a) to form a one-piece part.**”); *id.* at 23 (claim 1); *id.* at 31 (Figure 19 illustrating one-piece shell (a)).

Along with the great grandparent ‘818 application, the Applicant also submitted a Preliminary Amendment adding new claims. Ex. 1009 at 6-11. Consistent with the written description of the great grandparent ‘818 application, sole independent claim 1 (and the other claims by virtue of their dependency)

required that “the said battery assembly connects with the said atomizer assembly and both are located in the said shell (a).” *Id.* at 7; 27 (Fig. 1).

**April 5, 2011 – the ‘937 application:** The Applicant subsequently filed the ‘937 application as a divisional of the great grandparent ‘818 application. Ex. 1010; Ex. 1001 at 1. The Applicant also submitted a Preliminary Amendment amending the specification to “incorporate[] by reference” the great grandparent ‘818 application, the PCT ‘575 application, and the Chinese priority application. Ex. 1010 at 6. The Applicant canceled claims 1-29, and added new application claim 30, which required “a shell that is hollow and integrally formed: the said battery assembly connects with the said atomizer assembly, and both are located in the said shell.” *Id.* at 7.

**August 7, 2012 – the “substitute” specification:** On August 7, 2012, the Applicant submitted a substitute specification, which substantially revised the great grandparent ‘818 application. The revisions included numerous deletions apparently intended to broaden the disclosure to encompass an electronic cigarette in which the battery assembly and the atomizer assembly are not necessarily located in the same shell, but could be located in separate shells of a multi-shell housing. Ex. 1011 at 7-37 (substitute specification). In the Background Art, although continuing to disparage the prior art electronic cigarettes as “complicated in structure,” the substitute specification deleted the one example of this

complicated structure, namely, electronic cigarettes having bodies “divided into three sections, which have to be connected through via plugging or thread coupling before use.” *Id.* at 8, para. [0006].

The substitute specification also deleted from what became the Summary of Invention the reference to the “benefit” of the “invention” as an electronic cigarette having “just one connection between two parts,” (*i.e.*, between shell (a) and the cigarette holder shell (b)), which “result[s] in a very simple structure.” *Id.* at 14-15, para. [0037]. The Summary of Invention was also revised by deleting the reference to the battery assembly and the atomizer assembly residing together in the “same” integrally formed shell, and instead merely requires that the battery assembly and atomizer assembly are located in a “housing.” *Id.* at 9, para. [0008]. The substitute specification also revised the Description of Drawings, deleting every occurrence of the phrase “of this invention,” including by deleting “the electronic cigarette of this invention” with respect to Figures 1 and 2 which illustrate the electronic cigarette with a one-piece shell (a) in which both the battery assembly and the atomizer assembly are located. *Id.* at 15-18.

The Applicant also submitted new claims, including application claims 31 and 32. *Id.* at 4. Attempting to take advantage of the broadened disclosure of the substitute specification, claims 31 and 32 eliminated the requirement found in the previously presented claims of the ‘818 application that the battery assembly and

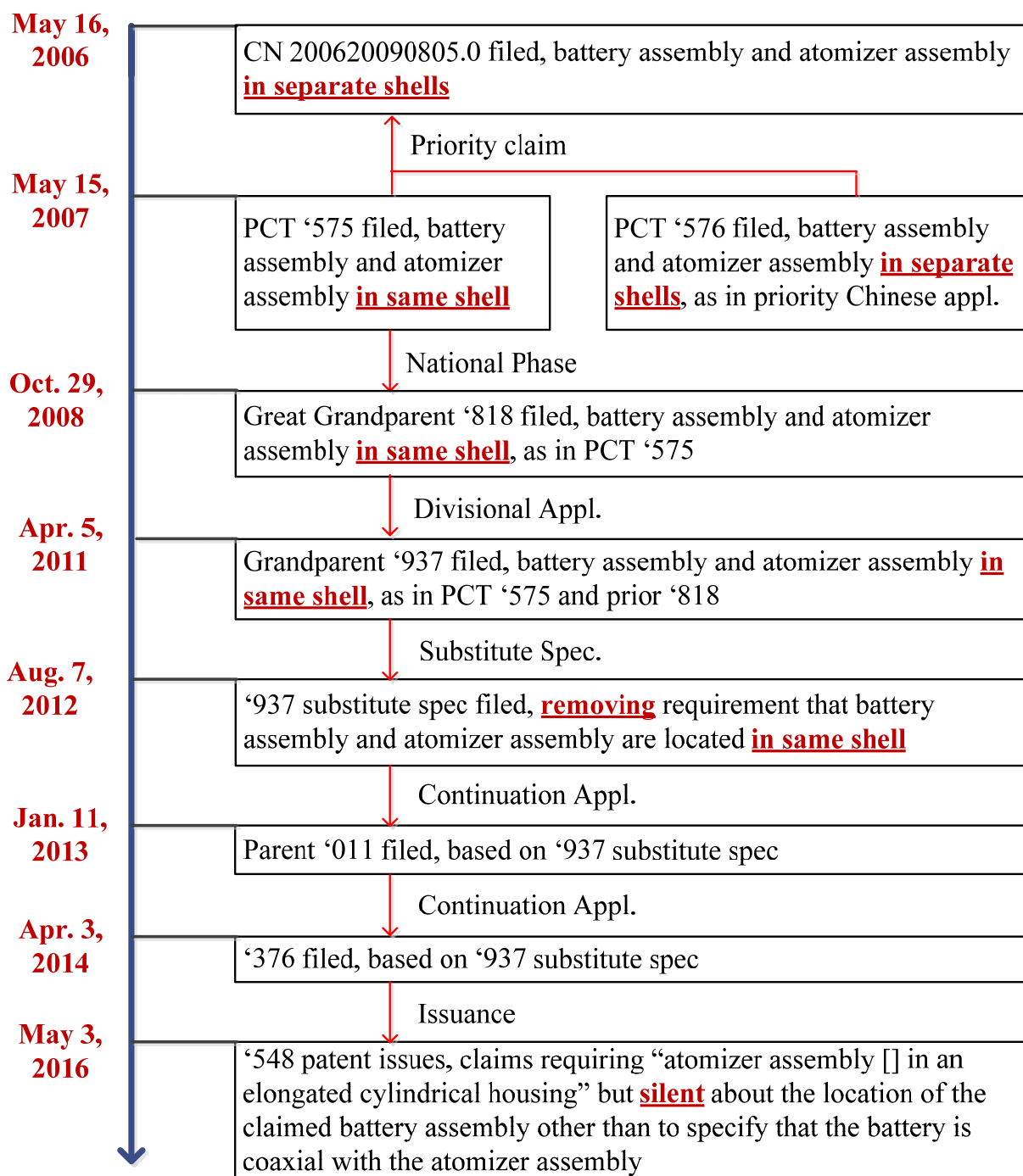
atomizer assembly are located together in “said” integrally formed shell (a), and instead merely required “a battery assembly and an atomizer assembly within a housing.” Ex. 1011 at 4.

In remarks accompanying the substitute specification, the Applicant stated that the substitute specification merely “corrects various grammatical and punctuation errors . . . and deletes extraneous and redundant content . . . .” *Id.* at 2. The Applicant’s revisions, however, were neither grammatical corrections nor the deletion of extraneous and redundant content. To the contrary, the substitute specification removed written description describing the “invention” as an electronic cigarette with a one-piece shell in which both the battery assembly and the atomizer assembly are located.

**January 11, 2013 – the ‘011 application:** The Applicant filed U.S. Serial No. 13/740,011 (“parent ‘011 application”) as a continuation of the ‘937 application. Ex. 1012; Ex. 1001 at 1. The ‘011 specification is substantially the same as the substitute specification filed in the ‘937 application. Ex. 1012 at 1.

**April 3, 2014 – the ‘376 application:** The Applicant filed U.S. Serial No. 14/244,376 (“‘376 application”, which matured into the ‘548 patent) as a continuation of the parent ‘011 application. Ex. 1013; Ex. 1001 at 1. The ‘376 specification is also substantially the same as the substitute specification filed in the ‘937 application. Ex. 1013.

The timeline below summarizes the foregoing sequence of events.



#### **4. The Patent Owner's Infringement Allegations:**

Claims 1-14 of the '548 patent require an "atomizer assembly [] in an elongated cylindrical housing" but are silent about the location of the claimed battery assembly, other than to require that the battery is coaxial with the atomizer assembly. Ex. 1001 at claims 1-14. In the complaint filed on May 3, 2016 in the Central District of California (Ex. 1019), the Patent Owner has alleged that an electronic cigarette having a battery assembly and an atomizer assembly located in separate shells of an alleged "housing" is within the scope of claims 1-14 of the '548 patent. Ex 1019, ¶¶ 17-18, 38-39, 50-51. However, claims of this scope, or which otherwise lack limitations requiring that the battery assembly and the atomizer assembly are located together in the same one-piece shell, are not entitled to the filing date of the great grandparent '818 application.

#### **5. The Great Grandparent '818 Application Does Not Support the Broad Scope of Clams 1-14 of the '548 Patent**

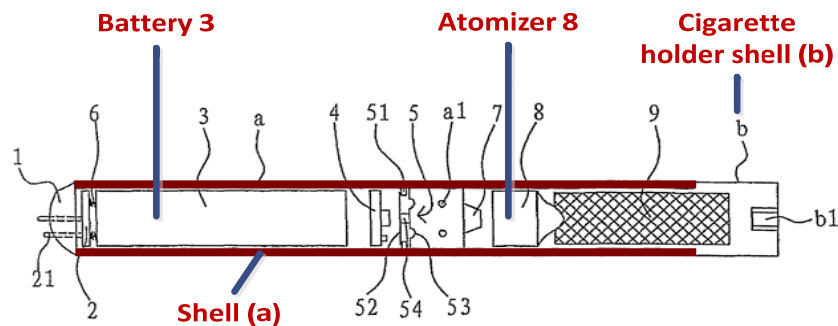
For the reasons stated in VI.F.3 *supra*, the great grandparent '818 application repeatedly describes the "invention" as an electronic cigarette that includes a one-piece shell in which both the battery assembly and the atomizer assembly are located. Ex. 1009; *see also* Ex. 1015, ¶¶ 62-77. There is no disclosure in the great grandparent '818 application of an electronic cigarette having a structure other than the battery assembly and the atomizer assembly

located together in the same one-piece shell (*i.e.*, shell (a)). Accordingly, and as confirmed by Dr. Sturges, the invention described in the great grandparent ‘818 application does not convey to the PHOSITA that the inventor was in possession, at the time of the ‘818 application, of an electronic cigarette having a housing in which the battery assembly and the atomizer assembly are located in separate shells, or where there otherwise is no restriction at all as to the location of the battery assembly other than the battery merely be coaxial with the atomizer assembly. Ex. 1015, ¶¶ 70-73.

In an effort to muster written description support in the great grandparent ‘818 application for the claims of the ‘548 patent, Patent Owner may argue that the integrally formed shell (a) need not be a one-piece shell but could also be “integrally formed” from two or more separate yet connected pieces or shells, and thus the battery assembly may be located in one shell and the atomizer assembly located in another shell, or in no shell at all provided that the battery is coaxial with the atomizer assembly. But any such argument is belied by the written description of the “invention” set forth in the ‘818 application. The only disclosed location for the battery assembly and atomizer assembly is inside of a one-piece shell, shell (a). As illustrated in Figures 1 and 2, the shell (a) of the “invention” is made from one piece, *i.e.*, it is a one-piece shell and not a shell formed from two or more separate yet connected pieces. Ex. 1015, ¶ 74. Moreover, shell (a) must necessarily be a



one-piece shell in order to achieve the “benefit” of “this invention.” As the ‘818 application notes, the “invention” is an electronic cigarette in which “the battery assembly and atomizer assembly are directly installed inside the shell, and then connected with the cigarette bottle assembly.” Ex. 1009 at 16, last paragraph, ll. 5-6; Ex. 1015, ¶¶ 72-73. A “benefit” of the electronic cigarette of the “invention” having this structure is that there is “just one connection between two parts, resulting in a very simple structure.” The “just one connection” is between the shell (a) and the detachable cigarette holder shell (b). Ex. 1009 at 16, last paragraph, l. 7; Ex. 1015, ¶¶ 72-73.



Ex. 1009 at 17, 27 (Fig. 1)

In order for the electronic cigarette of the “invention” to enjoy this “benefit,” the shell in which both the battery assembly and the atomizer assembly reside is necessarily a one-piece shell. As the PHOSITA would have readily understood, if that shell (*i.e.*, shell (a)) were formed from two or more separate yet connected pieces, then the resulting electronic cigarette would have two or more connections, and not “just one” between parts (*i.e.*, shell (a) and shell (b)) according to the

“invention.” The first connection would be between separate pieces of shell (a), and then a second connection would be required between the shell (a) and the cigarette holder shell (b). Ex. 1015, ¶¶ 72-73. Indeed, such a configuration would result in an electronic cigarette with at least three sections, which the great grandparent ‘818 application disparages as “complicated” with respect to the prior art electronic cigarettes. Ex. 1009 at 13, last paragraph

The Patent Owner may also argue that the claimed “housing” can be two pieces, referring to shell (a) and detachable cigarette holder shell (b) for support in the great grandparent ‘818 application. But whether the housing can be formed from separate pieces is not the relevant issue. The relevant issue is that the great grandparent ‘818 application describes the “invention” as an electronic cigarette including a one-piece shell (a) in which both the battery assembly and the atomizer assembly are located. Thus, although shell (a) and detachable shell (b) may be combined to form a “housing,” the “invention” described in the ‘818 application is limited to an electronic cigarette in which the battery assembly and the atomizer assembly are located together in a one-piece shell (a) of a housing.

The Patent Owner may also direct the Board to the district court’s ruling in the previous wave of litigations that the phrase “integrally formed” as used in claim 1 of the ‘742 patent means “formed by parts that make up a whole” (Ex. 1017 at 10). Thus, Patent Owner may contend that this necessarily means that

“integrally formed” shell (a) described in the great grandparent ‘818 application can be “integrally formed” from two separate yet connected pieces with the battery assembly in one piece and the atomizer assembly in the other. However, the Patent Owner’s reliance on the district court’s construction of “integrally formed” would be misplaced because it is based upon the broadened disclosure of the ‘742 patent (which is based upon the broadening substitute specification), and not the narrow disclosure of the great grandparent ‘818 application.

Indeed, this highlights a fundamental problem with the substitute specification. As noted above, the ‘742 patent is based upon the substitute specification, which substantially broadened the disclosure of the great grandparent ‘818 application’s description of the invention. The substitute specification deleted disclosure that linked the “invention” to an electronic cigarette including a one-piece shell in which both the battery assembly and the atomizer assembly are located. Thus, the district court did not evaluate the meaning of “integrally formed” constrained by the limiting disclosure of the ‘818 application, but instead evaluated this phrase in the context of the broader disclosure found in the ‘742 patent. The district court’s interpretation of “integrally formed” in the context of the ‘742 patent is not particularly relevant to the meaning of this phrase in the context of the much narrower disclosure of the great grandparent ‘818 application, other than to illustrate that the disclosure of the ‘742 patent is broader than that of

the ‘818 application. As Dr. Sturgis opines, in the context of the limiting written description of the great grandparent ‘818 application, the PHOSITA would have understood the shell in which both the battery assembly and atomizer assembly are located is a one-piece shell. Ex. 1015, ¶¶ 62-77.

The later filed “substitute” specification was the Applicant’s effort to cure the lack of written description support in the great grandparent ‘818 application for broad claims that are not limited to an electronic cigarette in which the battery assembly and the atomizer assembly are located together in the same one-piece shell. Yet, notwithstanding the broadening revisions to the great grandparent ‘818 application, the Applicant told the Examiner that the substitute specification merely “corrects various grammatical and punctuation errors” and “deletes extraneous and redundant content.” Ex. 1011 at 2. But, that was not the case. The deletions to the specification were significant, and intended to broaden the “invention” from an electronic cigarette where the battery assembly and the atomizer assembly are located in the same one-piece shell to an invention that was not so limited. *See Anascape Ltd.*, 601 F.3d at 1338 (“A description can be broadened by removing limitations. The limitation to a single input member capable of movement in six degrees of freedom was removed . . . and new claims were provided of commensurately broadened scope. This is classical new matter.”); *see also Verizon Servs. Corp. et al. v. Vonage Holdings Corp. et al.*, 503

F.3d 1295, 1308 (Fed. Cir. 2007) (“When a patent thus describes the features of the ‘present invention’ as a whole, this description limits the scope of the invention.”).<sup>4</sup>

Finally, the conclusion that claims 1-14 of the ‘548 patent lack written description support in the great grandparent ‘818 application is further demonstrated by three Federal Circuit decisions, which are discussed below. The facts in each of these cases are similar to those with respect to claims 1-14 of the ‘548 patent, and in each case, the Federal Circuit determined that later-filed broad claims lacked written description support in an earlier-filed, narrower disclosure.

In *ICU Medical*, the specification “describe[d] only medical valves with spikes” and the original claims were likewise limited to medical valves with spikes. 558 F.3d at 1378. During prosecution the patentee added claims

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<sup>4</sup> It is not clear from the prosecution history whether the Examiner simply accepted the Applicant’s representations or, in the alternative, substantively considered the “substitute specification” for issues involving new matter and/or whether the new claims found written description support in the ‘818 application. *In re NPT, Inc.*, 654 F.3d at 1278-79 (“Whether an examiner considered an issue must be content-specific, and here, there is no evidence that the examiner actually considered whether the claims of the ‘592 Patent satisfy the requirements of § 112.”)

encompassing valves that did not require spikes. *Id.* at 1377. The patentee argued that the claims that are silent regarding whether the valve included a spike were supported by the written description of the specification, which only disclosed valves with spikes. *Id.* The Federal Circuit rejected the patentee’s argument noting that “a person of skill in the art would not understand the inventor . . . to have invented a spikeless medical valve.” *Id.* at 1378. The Federal Circuit further noted that “[i]t is not enough that it would have been obvious to a person of ordinary skill that [the valve] could be used without a spike.” *Id.* at 1379.

Here, the specification, figures, and original claims of the great grandparent ‘818 application are limited to an electronic cigarette having a one-piece shell in which both the battery assembly and the atomizer assembly are located. Yet, the Applicant later obtained allowance of claims 1-14 of the ‘548 patent that do not require the battery assembly and atomizer assembly to be located together in the same one-piece shell. Just as in *ICU Medical*, where the narrow disclosure of a medical valve with spikes could not support broad claims that omitted the requirement for spikes, the ‘818 application’s narrow description of the “invention” as the battery assembly and atomizer assembly located together in the same one-piece shell cannot support the broad claims 1-14 of the ‘548 patent that omit this requirement.

In *Research Corp. Techs.*, the Federal Circuit held that claims of the later-filed child application that did not require a “blue noise mask” were not entitled to the filing date of the parent application. 627 F.3d at 871-872. In reaching that conclusion, the Federal Circuit noted that the parent application “repeatedly refer[s] to a blue noise mask as ‘the present invention,’” the figures all disclosed a blue noise mask, and all of the approved claims of the parent application recited a blue noise mask. *Id.*

Similarly, the great grandparent ‘818 application repeatedly describes and illustrates the electronic cigarette of the “invention” as having a one-piece shell in which both the battery assembly and atomizer assembly are located. Ex. 1009. Just as in *Research Corp.*, claims 1-14 of the ‘548 patent, which do not require the battery assembly and the atomizer assembly to be located together in the same one-piece shell, are not entitled to the filing date of the ‘818 application.

In *Anascope, Ltd.*, the Federal Circuit held that the claims of the child application were not entitled to the priority date of the parent application. 601 F.3d at 1334, 1340. The Court found that the specification and drawings of the parent were limited to a *single* input member, and the description of the invention in the child application was broadened by removing narrowing language found in the parent application. *Id.* at 1338-39. Specifically, the Court noted that “[i]n the ‘Background of the Invention’ and ‘Summary of the Invention’ sections, every

occurrence of ‘hand operable single input member’ in the [child patent] was replaced with ‘hand operable input member(s)’ . . . or ‘at least one hand operable input member.’” *Id.* at 1338.

The situation with respect to claims 1-14 of the ‘548 patent is strikingly similar. The description and original claims of the great grandparent ‘818 application repeatedly limit the electronic cigarette of the “invention” to a one-piece shell in which both the battery assembly and atomizer assembly are located. Several years after filing the ‘818 application, the Applicant filed a substitute specification in a later-filed divisional application that eliminated the narrowing disclosure from the ‘818 application, and then exploited the broadening disclosure as support for claims 1-14 of the ‘548 patent.

As was the case in *Anascope*, it would be “untenable” for Patent Owner to contend that the substantive changes in the substitute specification, which removed the requirement that the battery assembly and the atomizer assembly are located together in the same one-piece shell, did not add broadening new matter. *See* 601 F.3d at 1338 (Patentee “states that these changes to the [child] specification and claims are not ‘new matter.’” That position is untenable, for the changes are extensive and substantive. A description can be broadened by removing limitations. The limitation to a single input member...was removed, in filing the [child] application, and new claims were provided of commensurately broadened



scope. This is classical new matter.”). Although the Applicant characterized the changes as grammatical corrections, the changes were in fact substantive and intended to cure the lack of written description support in the great grandparent ‘818 application for the broad scope of claims 1-14 of the ‘548 patent, which not only do not require that the battery assembly and atomizer assembly are located together in the same, one-piece shell, but also include no limitations at all directed to the location of the battery assembly, other than the battery is coaxial with the atomizer assembly.

In summary, the Federal Circuit decisions in *ICU Medical, Research Corp. Techs.*, and *Anascope* further demonstrate that claims 1-14 of the ‘548 patent are not entitled to the filing date of the great grandparent ‘818 application, which has a disclosure that limits the “invention” to an electronic cigarette where the battery assembly and atomizer assembly are located together in the same one-piece shell. As a result, claims 1-14 of the ‘548 patent are anticipated by the ‘311 publication.

## **VII. CONCLUSION**

Petitioner has demonstrated that claims 1-14 of the ‘548 patent are not entitled to the priority date of the great grandparent ‘818 application. As such, the ‘311 publication is anticipatory prior art under 35 U.S.C. § 102(b). Petitioner therefore requests that the Board grant *inter partes* review for each of those claims.

Dated: August 30, 2016

Respectfully submitted,

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## **CERTIFICATE OF COMPLIANCE**

The undersigned certifies that this brief complies with the type-volume limitations of 37 CFR § 42.24(a)(1)(i). This brief, excluding a table of contents, a table of authorities, and a certificate of service or word count, contains 13,896 words as calculated by the “Word Count” feature of Microsoft Word 2010, the word processing program used to create it.

The undersigned further certifies that this brief complies with the typeface requirements of 37 CFR § 42.6(a)(2)(ii) and typestyle requirements of 37 CFR § 42.6(a)(2)(iii). This brief has been prepared in a proportionally spaced typeface using Microsoft Word 2010 in Times New Roman 14 point font.

DATED: August 30, 2016

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## **CERTIFICATE OF SERVICE**

Pursuant to 37 CFR §§ 42.6(e)(4)(i) *et seq.* and 42.105(b), the undersigned certifies that on August 30, 2016, a complete and entire copy of this Petition for *Inter Partes* Review, and all supporting exhibits, were served by EXPRESS MAIL® to the Patent Owner by serving the correspondent of record, as indicated below:

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