

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NJOY, INC.
Petitioner,

v.

FONTEM HOLDINGS 1 B.V.
Patent Owner.

Case 2014-01300
Patent No. 8,490,628

**PATENT OWNER PRELIMINARY RESPONSE TO PETITION FOR
INTER PARTES REVIEW OF U.S. PATENT NO. 8,490,628**

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LIST OF EXHIBITS RELIED UPON HEREIN

Petitioner's Exhibits	
Exhibit	Description
Ex. 1001	U.S. Patent No. 8,490,628 ("the '628 patent")
Ex. 1002	U.S. Patent No. 8,490,628 File History ("File History")
Ex. 1003	U.S. Patent No. 6,155,268 ("Takeuchi")
Ex. 1004	U.S. Patent No. 2,057,353 ("Whittemore")
Ex. 1007	U.S. Patent No. 6,598,607 ("Adiga")
Ex. 1008	European Patent No. EP0845220 B1 ("Susa")
Ex. 1009	U.S. Patent No. 3,200,819 ("Gilbert")
Ex. 1011	U.S. Patent No. 5,894,841 ("Voges")
Ex. 1012	U.S. Patent No. 5,703,633 ("Gehrer")
Ex. 1013	Thermal Ink-Jet Print Cartridge Designers Guide (2nd Ed. Hewlett Packard) ("Designer's Guide")
Ex. 1034	U.S. Patent No. 7,284,424 ("Kanke")
Ex. 1035	U.S. Patent No. 5,224,265 ("Dux")
Ex. 1040	Declaration of Dr. John M. Collins ("Collins Decl.")

Patent Owner's Exhibits	
Exhibit	Description
Ex. 2001	Merriam Webster's Collegiate Dictionary (11th ed. 2003)
Ex. 2002	Inspiro Medical Website http://www.inspiromedical.com/products.asp (last visited November 12, 2014)
Ex. 2003	NJOY website, https://www.njoy.com/faq (last visited November 18, 2014)
Ex. 2004	NJOY website, https://www.njoy.com/whats-an-e-cigarette (last visited November 18, 2014)
Ex. 2005	Oxford Dictionary Online, http://www.oxforddictionaries.com/us/definition/american_english/electronic-cigarette (last visited November 20, 2014)
Ex. 2006	Dictionary.com website, http://dictionary.reference.com/browse/electronic-cigarette (last visited November 20, 2014)
Ex. 2007	<i>Fontem v. NJOY</i> , Case No. CV14-1645 GW (MRWx) at Dkt. 34
Ex. 2008	Falmer Thermal Spray Website, http://falmer.com/?page_id=22 (last visited November 17, 2014)

Ex. 2009	European Patent Publication No. EP0893071 (“Takeuchi EP”)
Ex. 2010	PCT Patent Publication No. WO200334847 (“Adiga/Abhulimen WO”)

I. INTRODUCTION

NJOY, Inc. (“Petitioner”) filed a Petition for *Inter Partes* Review of U.S. Patent No. 8,490,628 (the “’628 patent”) on August 15, 2014. The Patent Trial and Appeal Board (the “Board”) mailed a Notice of Filing Date Accorded to Petition on August 20, 2014. Paper 3. Pursuant to 37 C.F.R. § 42.107, Fontem Holdings 1 B.V. (“Patent Owner”) submits this Preliminary Patent Owner Response requesting that the petition be denied because the Petitioner has failed to establish “that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition” under 35 U.S.C. § 314(a).

Petitioner’s proposed claim constructions should be rejected.¹ Those constructions ignore the claim terms’ plain meaning, violate the broadest reasonable interpretation standard, and contradict the ’628 patent’s disclosure. Petitioner provides no reasoning whatsoever for its proposed claim constructions. Petition at 8–9. Petitioner’s expert states that he was instructed to “assume those constructions.” Collins Decl. at ¶ 18 (Ex. 1040). But, “[a]rgument of counsel cannot take the place of evidence lacking in the record.” *Estee Lauder Inc. v. L’Oreal, S.A.*, 129 F.3d 588, 595 (Fed. Cir. 1997) . *See also Velandier v. Garner*,

¹ Patent Owner does not dispute Petitioner’s construction for “central axis.”

Petition at 9. That term, however, needs no construction.

348 F.3d 1359, 1371 (Fed. Cir. 2003) (attorney argument and conclusory statements, absent evidence, are entitled to little, if any, weight).

Under a proper claim construction as set forth herein, Petitioner's prior art fails to disclose several claim limitations. Moreover, Petitioner's prior art, or duplicative art and arguments, were already before the Patent Office during prosecution of the '628 patent prior to the Patent Office allowing the claims. Accordingly, the Board should deny Petitioner's request.

II. CLAIM CONSTRUCTION

In an *inter partes* review proceeding, “[a] claim in an unexpired patent shall be given its broadest reasonable construction in light of the specification of the patent in which it appears.” 37 C.F.R. § 42.100(b). Under that standard, primacy is given “to the language of the claims, followed by the specification. Additionally, the prosecution history, while not literally within the patent document, serves as intrinsic evidence for purposes of claim construction.” *Tempo Lighting v. Tivoli*, 742 F.3d 973, 977 (2013).

Moreover, claims are construed from the perspective of one of ordinary skill in the art at the time of the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en banc).

Here, one of ordinary skill in the art has a mechanical or electrical engineering degree, industrial design degree, or a similar technical degree, or

equivalent work experience, and 5–10 years of working in the area of electromechanical devices, including medical devices. The '628 patent invention date is at least the filing date of its Chinese priority application on April 14, 2004. Petitioner does not dispute that invention date.

A. “electronic cigarette”

Patent Owner’s Construction	Petitioner’s Construction
a device that simulates the feel and experience of a cigarette without burning	a device for electrically generating nicotine based liquid aerosols, without tar, for inhalation by a user

The preamble of every claim of the '628 patent recites an “electronic cigarette.” Patent Owner proposes that the plain meaning of “electronic cigarette” is “a device that simulates the feel and experience of a cigarette using electronics instead of burning.” In contrast, Petitioner asserts that “electronic cigarette” means “a device for electrically generating nicotine based liquid aerosols, without tar, for inhalation by a user.” Petition at 10. Both parties appear to agree that “electronic” means that the device functions “using electronics instead of burning.”

The dispute relates to the form and function of the device. Patent Owner proposes that “cigarette” means just that, “a device that simulates the feel and experience of a cigarette.” In contrast, Petitioner’s construction requires that the device simply “generat[e] nicotine based liquid aerosols, without tar, for inhalation by a user.”

Petitioner's construction is both too narrow in that its function is limited to "nicotine delivery" and too broad in that it includes any form of device so long as that device delivers nicotine. First, the plain meaning of "cigarette" is not limited to nicotine delivery. While cigarettes have certainly been used to smoke tobacco which contains nicotine, the term cigarette is also used to describe non-tobacco products. For example, Webster's defines "cigarette" as "a slender roll of cut tobacco enclosed in paper and meant to be smoked; *also*: a similar roll of another substance (as marijuana)." Merriam Webster's Collegiate Dictionary (11th ed. 2003) at 223 ("Webster's") (Ex. 2001).

Second, Petitioner's proposed construction is also too broad. Under Petitioner's proposed construction any medical device that delivers nicotine for inhalation would be considered an "electronic cigarette" whether or not that device simulates the feel and experience of a cigarette. But under the broadest reasonable construction standard, one skilled in the art would not consider a medical inhaler, like the Inspiromatic™ (<http://www.inspiromedical.com/products.asp>, last visited November 20, 2014) (Ex. 2002), right, to be an electronic cigarette simply because it can deliver



nicotine. Such a device does not simulate the experience or feel of smoking a cigarette.²

Patent Owner's construction is supported by the plain meaning of the term cigarette, the disclosure in the '628 patent specification, Petitioner's own expert, and Petitioner's use of the term "electronic cigarette" outside of this proceeding. The '628 patent specification describes the characteristics of an "electronic cigarette." The '628 patent discloses a device that simulates a real cigarette reciting: "simulating a cigarette that looks like a normal cigarette." '628 patent at 4:51–52 (Ex. 1001). The specification further discloses a device that is a substitute for smoking, reciting that "[a]n electronic atomization cigarette functions as substitutes for quitting smoking and cigarette substitutes. . . ." '628 patent at 1:56–62 (Ex. 1001). The '331 patent also criticizes prior art cigarette substitutes, like the "nicotine patch" and "nicotine chewing gum," as not satisfying the "habitual smoking actions of a smoker" and identifying "inhaling" as one example of those actions. '628 patent at 1:42–52 (Ex. 1001). *See also* Voges at 2:19–22 ("such forms do not satisfy important complex physiological and psychological affinities acquired by habitual smokers of combustible cigarettes.") (Ex. 1011). In view of

² Yet that is precisely the type of device that Petitioner's expert suggest should be considered. Collins Decl. at ¶ 31 (Ex. 1040).

the '628 patent specification, an “electronic cigarette” is not simply an electronic device that allows for the inhalation of nicotine without tar, as Petitioner argues. Instead, an “electronic cigarette” is “a device that simulates the feel and experience of a cigarette using electronics instead of burning.”

Petitioner’s expert’s declaration further supports Patent Owner’s construction. Petitioner’s expert stated that “[a]n e-cigarette is generally designed to replicate the function and user experience of a conventional cigarette.” Collins Decl. at ¶ 30 (Ex. 1040). Attempting to antedate the '628 patent with purported electronic cigarette art, Petitioner’s expert asserts that “[b]y April 14, 2004, a great deal was known about e-cigarettes and the ways they could be used.” Collins Decl. at ¶ 29 (Ex. 1040). Yet, none of the cited references refer to the disclosed devices as electronic cigarettes, not even the “major tobacco” companies’ references. Tellingly, Petitioner and its expert rely on references far afield from electronic cigarettes including, but not limited to bubble jet printers, ink jet printers, ink containers and fountain pens. Collins Decl. at ¶¶ 38–39 (Ex. 1040).

Petitioner also describes “electronic cigarettes” in a manner consistent with Patent Owner’s proposed construction. Petitioner describes its products as follows:

- An e-cigarette is made up of a battery, e-liquid, and an atomizing device, which is basically a heater that turns the e-liquid into vapor.

Our NJOY Kings are a disposable e-cigarette which looks and feels

like a traditional tobacco cigarette (emphasis added). (NJOY website, see <https://www.njoy.com/faq>) (last visited November 20, 2014) (Ex. 2003).

- Our NJOY Kings have a unique real-feel design, a super realistic faux filter, and a light-up tip just like a traditional tobacco cigarette (emphasis added). NJOY website, <https://www.njoy.com/whats-an-e-cigarette> (last visited November 20, 2014) (Ex. 2004).

And, contemporary dictionaries define “electronic cigarette” in a manner consistent with Patent Owner’s proposed construction. The Oxford Dictionaries Online, defines “electronic cigarette” as “[a] cigarette-shaped device containing a nicotine-based liquid that is vaporized and inhaled, used to simulate the experience of smoking tobacco” (emphasis added). http://www.oxforddictionaries.com/us/definition/american_english/electronic-cigarette (last visited November 20, 2014) (Ex. 2005). And Dictionary.com defines “e-cigarette” as “a device used to simulate the experience of smoking, having a cartridge with a heater that vaporizes liquid nicotine instead of burning tobacco” (emphasis added). Dictionary.com <http://dictionary.reference.com/browse/electronic+cigarette> (last visited November 20, 2014) (Ex. 2006).

In light of the specification’s description of an “electronic cigarette” and evidence of how that term is understood in the relevant art, the Board should adopt Patent Owner’s proposed construction.

B. “longitudinal axis”

Patent Owner’s Construction	Petitioner’s Construction
an axis along the length	an axis along the functional length

Claim 1 of the ’628 patent recites:

An electronic cigarette, comprising:
a housing having a *longitudinal axis*, an inlet and an outlet;
* * * and
a heating wire in the atomizer having a central axis oriented
substantially perpendicular to the *longitudinal axis* of the
housing.

And claims 7 and 8 of the ’628 patent recite:

An electronic cigarette, comprising:
* * *
a heating wire in the atomizer having a central axis oriented
substantially perpendicular to a *longitudinal axis* of the
housing. . . .

An electronic cigarette, comprising:
* * *
a heating wire having a central axis generally perpendicular to
a *longitudinal axis* of the housing. . . .

Patent Owner proposes that the plain meaning of “longitudinal axis” is “an axis along the length.” Petitioner’s proposed construction is the same except according to Petitioner the “longitudinal axis” requires the axis to be along the “functional length.” Petition at 9. In other words, Petitioner asks the Board to

rewrite “longitudinal” to mean “functional.”³ But “longitudinal” has no such meaning.

Webster’s defines longitudinal as “1: placed or running lengthwise 2: of or relating to length or the lengthwise dimension.” Webster’s at 734 (Ex. 2001). Webster’s defines length as “1a: the longer or longest dimension of an object.” Webster’s at 712 (Ex. 2004). The ’628 patent claims and specification are consistent with those dictionary definitions. As set forth above, an electronic cigarette must resemble a cigarette. Every embodiment disclosed in the ’628 patent resembles a cigarette by having a housing with a longitudinal axis, for example, as shown in Figure 1, right. And claims 1, 7, and 8 claim such an electronic cigarette by

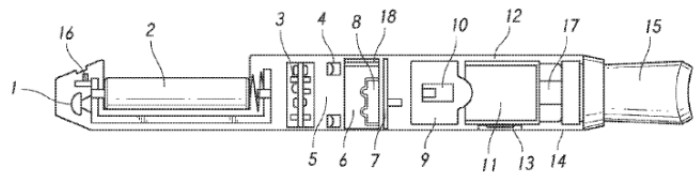


FIG. 1

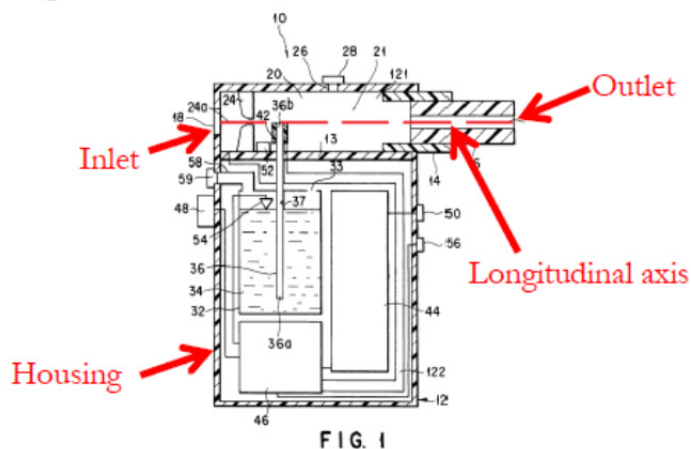
requiring an “electronic cigarette” having a “housing” with a “longitudinal axis.”

Petitioner cites nothing to support that the longitudinal axis is along the “functional length.” And, Petitioner does not explain what is meant by the “functional” length. As set forth above, Petitioner’s unsupported attorney

³ Petitioner did not assert its counterintuitive claim construction in the copending litigation involving the ’628 patent. *Fontem v. NJOY*, Case No. 14-1645, Dkt. 34 (Ex.2007).

argument regarding claim construction should be accorded no weight. Petitioner does assert, however, that the “functional length” and thus the “longitudinal axis” of a prior art reference, Takeuchi, is from the air inlet to the air outlet as shown in the figure, right. Petition at 14. But

if the longitudinal axis is from the air inlet to the air outlet as Petitioner suggests, then the longitudinal axis of the electronic



cigarettes disclosed in the '628 patent would run half the length of the device, from the air inlet 4 in the middle of the electronic cigarette to the end of the mouthpiece 15 on the end.

Nonsense. “Longitudinal axis” cannot mean the “functional length” under the broadest reasonable interpretation in view of the '628 patent specification. The Board should reject Petitioner’s construction and adopt Patent Owner’s.

C. “cavity”

Patent Owner’s Construction	Petitioner’s Construction
a hollow space	a hollow space within the atomizer separate from [the] air flow passage

Claim 3 of the '628 patent recites:

The electronic cigarette of claim 1 further including an atomization cavity within the atomizer.

Patent Owner proposes that the plain meaning of “cavity” is “a hollow space.” The parties appear to agree that “cavity” at least means “a hollow space.” Petitioner’s proposed construction, however, includes additional limitations. According to Petitioner, the term “cavity” requires that the cavity be “within the atomizer” and be “separate from [the] air flow passage.” Petition at 9. Petitioner’s additional requirements are unsupported by the plain claim language or the specification. As set forth above, Petitioner’s unsupported attorney argument regarding claim construction should be accorded no weight.

Claim 3 includes the only limitation to the location of structure for the claim’s “cavity,” reciting “an atomization cavity within the atomizer.” There is no reason to construe “cavity” to mean a cavity “within the atomizer.” That limitation is already in the claim. While claim 1 recites that the cavity is “within the atomizer,” that additional claim language identifies the location of the cavity, it does not define it.

Further, neither the claims nor the specification require a “cavity” that is “separate from [the] air passage.” To the contrary, the specification teaches that air flows from the inlet through the atomization cavity. ’628 patent at 3:46-61 (“Air . . . flows into the atomization cavity 10 in the atomizer 9.”) (Ex. 1001). Petitioner’s proposed construction improperly incorporates limitations and violates

the broadest reasonable interpretation standard. Accordingly, the Board should construe “cavity” to mean “a hollow space.”⁴

D. “atomizer”

Patent Owner’s Construction	Petitioner’s Construction
a component that converts liquid into aerosol or vapor	a part of the electronic cigarette that includes components that convert liquid into aerosols.

Claim 1 of the ’628 patent recites, in part:

An electronic cigarette comprising:
a housing. . . ;
* * *
an *atomizer* assembly in the housing;
* * *
a heating wire in the *atomizer*. . . .

Claim 7 of the ’628 patent recites, in part:

An electronic cigarette, comprising:
a housing. . . ;
* * *
an *atomizer* in the housing;
* * *
a heating wire in the *atomize*. . . .

⁴ In co-pending litigation, Petitioner omitted the requirement that the “cavity” be “separate from [the] air flow passage”; instead proposing that “cavity” means “a hollow space within and completely surrounded by the body of the atomizer.”

Fontem v. NJOY, Case No. 14-1645, Dkt. 34 at 8 (Ex.2007). Petitioner’s proposed construction here cannot be the broadest reasonable interpretation of “cavity” in light of Petitioner’s broader proposed construction before the district court.

Claim 8 of the '628 patent recites, in part:

An electronic cigarette, comprising
a housing
* * *
an atomizer in the housing. . . .

All of the claims of the '628 patent recite an “atomizer.” Patent Owner proposes that “atomizer” should be accorded its plain meaning of “a component that converts liquid into aerosol or vapor.” In a co-pending litigation involving the '628 patent, Petitioner, along with every other defendant, agreed with Patent Owner’s proposed construction for “atomizer.”⁵ Here, however, Petitioner reverses course arguing that “atomizer” should be construed as “a part of the electronic cigarette that includes components that convert liquid into aerosols.” Petition at 9.

The primary difference between the two constructions is that Petitioner’s construction attempts to expand the claimed “atomizer” to include extra components that do not “convert[] liquid into aerosol or vapor” by including the language “*a part of the electronic cigarette that includes components that convert liquid into aerosols.*” Petitioner’s construction attempts to broaden “atomizer” to include not only the components that atomize, but any “part of the electronic cigarette that includes” those components. Such a construction includes no limit to

⁵ *Fontem v. NJOY*, Case No. 14-1645, Dkt. 34 at 7 (Ex. 2007).

the claimed atomizer. By defining an atomizer as any part of the electronic cigarette that includes components that atomize, the atomizer would include the housing, which is a separately claimed limitation. That cannot be the correct construction. Petitioner points to no support in the claims or the specification for ascribing such a broad meaning to “atomizer.” As set forth above, Petitioner’s unsupported attorney argument regarding claim construction should be accorded no weight. Accordingly, Petitioner’s proposed construction is improper and the Board should construe “atomizer” to mean “a component that converts liquid into aerosol or vapor.”

E. “bulge section”

Patent Owner’s Construction	Petitioner’s Construction
a round mass thrusting out from the porous body	an extension section

Claim 6 of the ’628 patent recites, in part:

The electronic cigarette of claim 1 with the porous body of atomizer projecting into the liquid supply comprising a porous *bulge section*.

Patent Owner proposes that “bulge section” should be construed to mean “a round mass thrusting out from the porous body.” Petitioner asserts that “bulge section” should be construed as “an extension section.” Petition at 9.

Claim 6 recites a “the porous body of atomizer projecting into the liquid supply comprising a porous *bulge section*.” The ’628 patent specification discloses

a bulge as follows: “[t]he atomizer 9 is in contact with the liquid-supplying bottle 11 via the *bulge* 36. . . .” ’628 patent at 2:43–44 (Ex. 1001). And that bulge 36 shown in Figure 6, right, is “a round mass thrusting out from the porous body” as Patent Owner proposes.

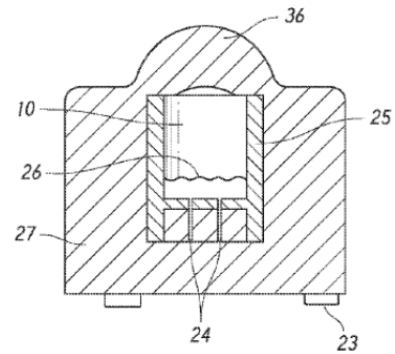


FIG. 6

Patent Owner’s construction and the ’628 patent specification are also consistent with the plain meaning of the term “bulge.” Webster’s defines “bulge” as “2 : a protuberant or swollen part or place.” Webster’s at 162 (Ex. 2001). Webster’s also defines protuberant as “thrusting out from a surrounding or adjacent surface often as a rounded mass.” Webster’s at 1001 (Ex. 2001).

In contrast, Petitioner cites no support for its proposed construction. As set forth above, Petitioner’s unsupported attorney argument regarding claim construction should be accorded no weight. Accordingly, the Board should construe the term “bulge section” to mean “a round mass thrusting out from the porous body” in accordance with the broadest reasonable construction of that term in view of the ’628 patent specification.

F. “projecting into” / “extending into”

Patent Owner’s Construction	Petitioner’s Construction
having at least a portion that protrudes into	positioned within

Claim 1 of the ’628 patent recites, in part:

An electronic cigarette, comprising:

* * *

a porous body *projecting into* the liquid supply. . . .

And, both claims 7 and 8 of the ’628 patent recite, in part:

An electronic cigarette, comprising:

* * *

a porous body *extending into* the liquid supply. . . .

Patent Owner proposes that “projecting into” and “extending into” need no construction. Their meaning is clear. In the alternative the terms should be construed to mean “having at least a portion that protrudes into.” Petitioner asserts that “projecting into” and “extending into” should be construed as “positioned within.” Petition at 9.

To the extent Petitioner does not assert that its construction requires the porous body to be completely “positioned within” the liquid supply, then there is not a meaningful dispute regarding these claim terms. The Board, however, should adopt Patent Owner’s construction because it more clearly construes the terms in accordance with the broadest reasonable construction in view of the ’628 patent specification, to avoid any confusion regarding that potential dispute.

Specifically, as shown in Figures 1 and 6, right, where Figure 6 is a close up of atomizer 9 from Figure 1, in one embodiment the '628 patent discloses that a portion of a porous body 27 called the bulge 36 is in contact with the liquid-supplying bottle 11. '628 patent at 2:43–44 (Ex. 1001). Thus, the porous body need not be completely positioned within the liquid supply. Patent Owner's construction removes any ambiguity regarding that potential dispute.

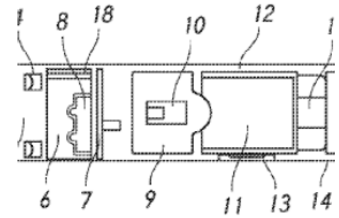


FIG. 1

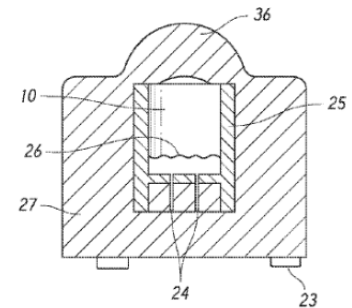


FIG. 6

III. THE PETITIONER FAILS TO SHOW A REASONABLE LIKELIHOOD THAT THE CLAIMS OF THE '628 PATENT ARE UNPATENTABLE

The Petitioner proposes six grounds for unpatentability for the '628 patent's independent claims:

- Ground 1. Takeuchi (U.S. Patent No. 6,155,268) (Ex. 1003) renders obvious claims 1, 2, 3, 6, 7, and 8;
- Ground 2. Takeuchi in view of Gilbert (U.S. Patent No. 3,200,819) (Ex. 1009) renders obvious claim 4;
- Ground 3. Takeuchi in view of Adiga (U.S. Patent No. 6,598,607) (Ex. 1007) renders obvious claim 5;

Ground 4. Susa (E.P. Patent No. 0845220B1) (Ex. 1008) in view of Whittemore (U.S. Patent No. 2,057,353) (Ex. 1004) renders obvious claims 1 - 4 and 6 - 8;

Ground 5. Susa in view of Whittemore and Adiga renders obvious claim 5; and

Ground 6. Voges (U.S. Patent No. 5,894,841) (Ex. 1011) in view of Gehrer (U.S. Patent No. 5,703,633) (Ex. 1012) renders obvious claims 1 - 8.

Petition at 6–7. As discussed in detail below, the Petitioner fails to show a reasonable likelihood that any of the claims of the ’628 patent are unpatentable. In addition, every dependent claim is patentable at least by virtue of its dependency on a patentable claim. Because of these deficiencies, the Petitioner fails to show that any of the claims of the ’628 patent are likely to be found unpatentable. Accordingly, the Board should not order *inter partes* review for any claim.

A. Burden of Proof and Legal Standard for Obviousness

As the moving party, the Petitioner “has the burden of proof to establish that it is entitled to the requested relief.” 37 C.F.R. § 42.20(c). “*Inter partes* review shall not be instituted for a ground of unpatentability unless the Board decides that the petition supporting the ground would demonstrate that it is a reasonable

likelihood that at least one of the claims challenged in the petition is unpatentable.”
37 C.F.R. § 42.108(c).

All of Petitioner’s purported Grounds for unpatentability are based on obviousness under 35 U.S.C. § 103. Petition at 6–7. To present a *prima facie* case of obviousness, Petitioner must show that “there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007). Relevant considerations may include “interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art.” *Id.* The analysis “should be made explicit.” *Id.* A statement that modifications of the prior art to meet the claimed invention would have been “well within the ordinary skill of the art at the time the claimed invention was made” because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a *prima facie* case of obviousness without some objective reason to combine the teachings of the references. *Ex parte Levensgood*, 28 U.S.P.Q. 2d 1300, 1301 (B.P.A.I. 1993). “[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal standard of obviousness.” *KSR*, 550 U.S. at 418) (quoting *In re*

Kahn, 441 F.3d 977, 988 (Fed. Cir. 2006)). When a petitioner fails to set forth a *prima facie* case of obviousness, the related grounds for unpatentability should be rejected. *Moses Lake Indus. v. Enthone, Inc.*, IPR2014-00246, Paper 6 at 15-19 (June 18, 2014).

B. Ground 1: Obviousness in View of Takeuchi

The Petitioner requests that claims 1, 2, 3, 6, 7, and 8 be cancelled as unpatentable under 35 U.S.C. § 103 over Takeuchi. Petition at 6. For the reasons outlined below Petitioner has not met its burden of proof on this Ground.

1. Claim 1

Petitioner has not met its burden as to claim 1 because Takeuchi lacks several claim limitations as described below.

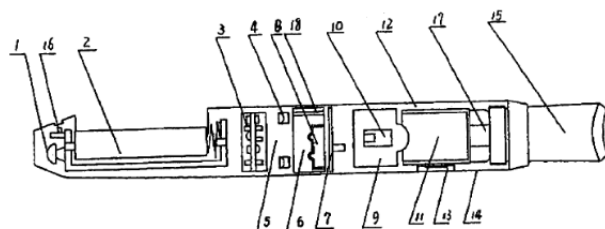
a. Takeuchi does not disclose an “electronic cigarette”

Although “electronic cigarette” appears in the preamble of claims 1–8 of the ’628 patent, the Board should consider it limiting. The ’628 patent specification is directed to an “electronic atomization cigarette.” ’628 patent, Title (Ex. 1001). Because combining the limitations of the claims to form an “electronic cigarette” is a fundamental characteristic of the invention, “electronic cigarette” should be a requirement of the claims. *Poly-America, L.P. v. GSE Lining Tech., Inc.*, 383 F.3d 1303, 1310 (Fed. Cir. 2004) (finding preamble phrase “blown-film” was a “fundamental characteristic” and limiting where specification described the

invention as a “blown-film” liner and that phrase was repeated in every claim); *Deere & Co. v. Bush Hog, LLC*, 703 F.3d 1349, 1358 (Fed. Cir. 2012) (holding preamble phrase “rotary cutter deck” was a limitation where specification referred to “the present invention” as “a rotary cutter deck”).

“Electronic cigarette” is also limiting because it breathes life into other claim limitations. *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1305 (Fed. Cir. 1999). All the claims of the ’628 patent require an “electronic cigarette” having a “housing” with a “longitudinal axis.” Every embodiment disclosed in the ’628 patent resembles a cigarette by having a housing with a longitudinal axis, for example, as shown in Figure 1, right.

That the housing has a “longitudinal axis” is given meaning from the fact that every claim is to an “electronic cigarette.”



Takeuchi does not disclose the “electronic cigarette” limitation of claim 1 of the ’628 patent. As properly construed, “electronic cigarette” means “a device that simulates the feel and experience of a cigarette without burning.” To do so, a device must look and feel like a real cigarette, and its use must resemble that of a real cigarette. Takeuchi does not meet those criteria. Takeuchi describes its invention as a “flavor-generating device,” not an “electronic cigarette.” Takeuchi at Abstract, 1:4-9 (Ex. 1003). And, although Takeuchi recites that the device can

be “for enjoying simulated smoking,” Takeuchi explains that the only way that the device “simulates smoking” is that it generates “flavor to be inhaled by the user.” Takeuchi at 1:3–6 (Ex. 1003). As shown in Figure 1 right, the device of Takeuchi is rectangular and bulky resembling a medical inhaler. The device does not simulate the feel and experience of a real cigarette.

That difference in shape and operation requires a meaningful difference in use. The Takeuchi device cannot be held between the index and middle finger and “smoked” like a real cigarette. It must be gripped by one’s hand. Because the Takeuchi device is not shaped like a cigarette and cannot be used like one, it does not teach the “electronic cigarette” limitation of claim 1. The Takeuchi device is simply a device to deliver a flavor, not simulate the experience of smoking a cigarette.

b. Takeuchi does not disclose “a housing having a longitudinal axis”

Takeuchi does not have an axis along its length because Takeuchi is in an upside down “L” configuration such that it does not resemble an “electronic cigarette” in any way. Takeuchi would have to be completely redesigned to have a “housing having a longitudinal axis”



Even applying Petitioner's incorrect construction of "functional length," Takeuchi still does not disclose "a housing having a longitudinal axis." Petitioner limits Takeuchi's "functional length" to the length between the inlet and outlet as shown in Figure 1, below. Petition at

c. Takeuchi does not disclose “an atomizer assembly in the housing between the inlet and the outlet”

An electronic cigarette comprising:

a housing having a longitudinal axis, an inlet and an outlet;
* * *
an airflow channel in the housing connecting the inlet to the
outlet;
*an atomizer assembly in the housing between the inlet and the
outlet. . .*

And claim 7 of the '628 patent recites, in part:

An electronic cigarette, comprising:
a housing having an inlet and an outlet;
* * *
an air flow channel through the housing connecting the inlet to
the outlet. . .; and
an atomizer in the housing between the inlet and the outlet. . . .

Both claim 1 and 7 make clear that the limitations “an airflow channel in the housing connecting the inlet to the outlet” and “an atomizer in the housing between the inlet and the outlet” require that air must flow from the inlet, to the atomizer and then from the atomizer to the outlet. Both claims recite that the claimed housing has “an inlet and an outlet.” Both claims further recite that there is “an airflow channel [in/through] the housing connecting the inlet and outlet.” And both claims recite that the atomizer in the housing is “between the inlet and the outlet.” One skilled in the art would understand that the recitation of “an inlet and an outlet” with an air flow path to connect that inlet and outlet and atomizer between the inlet and outlet require that the atomizer be in the airflow path between the inlet and outlet.

That understanding is supported by the '628 patent specification. Every embodiment of the '628 patent shows that claimed configuration. The '628 patent

specification describes that “air enters the normal pressure cavity 5 through the air inlet 4, passes through the air passage 18 of the sensor and then the through hole in the vapor-liquid separator 7, and flows into the atomization cavity 10 in the atomizer 9.” ’628 patent at 3:45–48 (Ex. 1001). The ’628 patent further discloses that “[t]he air inlet 4, normal pressure cavity 5, vapor liquid separator 7, atomizer 9, aerosol passage, 12, gas vent 17, [and] mouthpiece 15 are sequentially interconnected.” ’628 Patent at 3:12–15 (Ex. 1001). That configuration is shown in Figure 1, right.

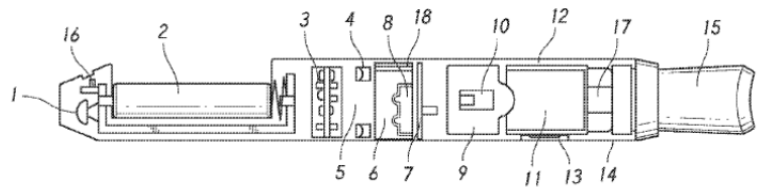


FIG. 1

In describing the air flow “to the atomizer,” the ’628 patent discloses that “[t]he high speed [air] stream passing through the ejection hole [24] drives the nicotine solution in the porous body 27 to eject into the atomization cavity 10 in the form of droplets, where the nicotine solution . . . is further atomized by the heating element 26,” as shown in Figure 6, right. ’628 patent at 3:48–54 (Ex. 1001). Every embodiment of the ’628 patent discloses that same configuration, namely, that the airflow channel between the inlet and outlet goes through the atomizer. Accordingly, the claim limitations “an airflow channel in

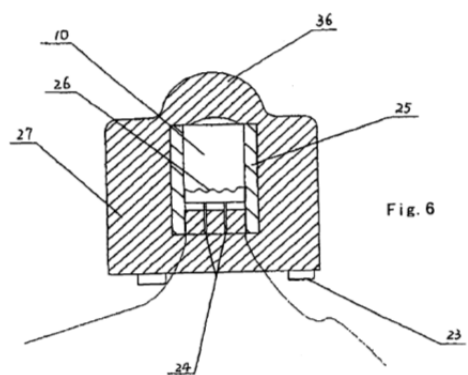


Fig. 6

the housing connecting the inlet to the outlet” and “an atomizer in the housing between the inlet and the outlet” requires that air must flow from the inlet, through the atomizer and then to the outlet.

Takeuchi does not disclose “an atomizer in the housing between the inlet and the outlet.” Instead, Takeuchi discloses an air passage that goes over the heater outlet port 36[b] to the gas passageway 20. Takeuchi teaches that atomization occurs within the outlet port 36[b], specifically, “the liquid flavor source 34 with in the outlet port is instantly gasified by the heat generated from the heater 42 as shown in FIG. 2B so as to be supplied into the gas passageway 20.” Takeuchi at 7:60-63 (Ex. 1003). In other words, the place where atomization occurs is within the outlet port 36[b], and the atomized particles exit that outlet port 36[b]. Air cannot flow through the outlet port 36[b].

As can be seen in Takeuchi’s Figure 4, right, Takeuchi discloses the opposite of what is claimed, namely, that the atomizer (interior of the outlet

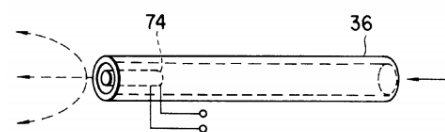


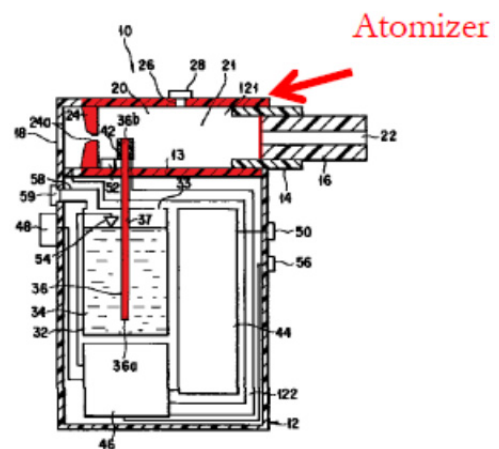
FIG. 4

36[b] and heater 74) leads to the gas passageway (indicated by directional arrows) instead of the passageway leading from the inlet to the atomizer, which would be contrary to the directional arrows.

Under a proper identification of the atomizer in Takeuchi (outlet port 36[b]), Petitioner admits that Takeuchi’s atomizer “(outlet port 36[b]) is not in the airflow

path between the inlet and outlet by asserting that the space within that outlet port 36[b] meets the “cavity” limitation of claim 3 under Petitioner’s proposed construction of “cavity.” Petition at 20–21. Petitioner proposes that the claimed “cavity” must be “separate from [the] air flow.” Petition at 9. While Petitioner’s construction for “cavity” is incorrect as set forth above, Petitioner’s admission that Takeuchi’s alleged atomization cavity is separate from the air flow passage demonstrates that Takeuchi fails to disclose the limitation “an atomizer in the housing between the inlet and the outlet” as claimed.

Recognizing Takeuchi’s failure to disclose “an atomizer in the housing between the inlet and the outlet,” Petitioner attempts to include upper chamber 121 as part of the atomizer. Petition at 15–16 (Figure right, annotations in original). But as set forth above, upper chamber 121 simply receives the already atomized particles, it is not a component where atomization occurs and in fact plays no role in atomization.



Petitioner’s assertion that the upper chamber 121 is part of the atomizer is also contradicted by the claim language. Claim 1 recites “an atomizer assembly in the housing.” Yet, under Petitioner’s strained reading to include the upper chamber

121 as part of the atomizer, the housing is now part of the atomizer. That cannot be a correct construction.

Accordingly, Petitioner fails to meet its burden of proof to set forth a prima facie case of obviousness and the Board should not institute Ground 1.

d. Takeuchi does not disclose “a heating wire in the atomizer”

Claim 1 requires “a heating wire in the atomizer.” The ’628 patent discloses a “heating element 26, which can be made of platinum wire, nickel chromium alloy or iron chromium aluminum alloy wire with rare earth element. . . .” ’628 patent at 2:47–50 (Ex. 1001).

Takeuchi’s heater 42 is not a heating wire. Takeuchi discloses that “the heater 42 consists of a tubular body mounted to the capillary tube 36 and having an inner diameter equal to that of the capillary tube 36. In other words, the outlet port 36[b] of the liquid passageway 36 is formed by the heater 42 itself.” Takeuchi at 6:8–13 (Ex. 1003).

Petitioner does not assert that Takeuchi’s rod-like heater 74, right, is a heating wire.

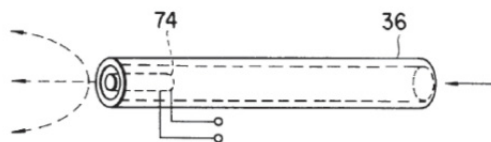


FIG. 4

Instead, Petitioner argues that “[i]t would be

obvious to a POSITA to substitute Takeuchi’s rod-like heater 74 with a wire.”

Petition at 19. Petitioner cites its expert’s declaration at ¶¶ 40 and 54 in support.

Paragraph 54 addresses modification to Takeuchi specifically, but does not indicate

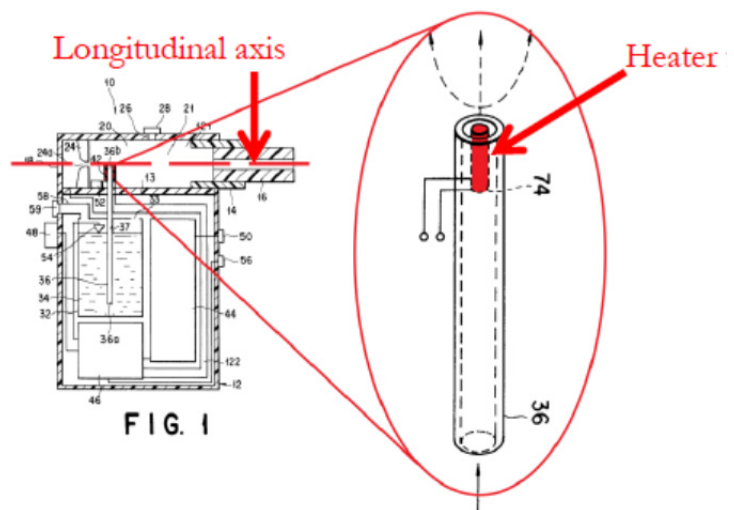
that Takeuchi's rod-like heater could be replaced by a heating wire. Collins Decl. at ¶54 (Ex. 1040). Paragraph 40 generally states that because "heating and piezoelectric elements came in different shapes, such as coils, straight wires or rods, thin film wires, plates, etc.," "selecting any shape over another would have been an obvious design choice." Collins Decl. at ¶ 40 (Ex. 1040). However, neither paragraph 40 or 54 of the Collins Decl. states that it would have been obvious to make that change. Thus, Petitioner provides no reason or motivation why one would have modified Takeuchi as claimed or how the modification would have been made.

e. Takeuchi does not disclose "a heating wire in the atomizer having a central axis oriented substantially perpendicular to the longitudinal axis of the housing"

Even if Takeuchi is found to disclose a heating wire—it does not—Claim 1 further requires "a heating wire in the atomizer having a central axis oriented substantially perpendicular to the longitudinal axis of the housing."

Petitioner's assertion that Takeuchi discloses that claim limitation is contingent on Petitioner's incorrect construction of "longitudinal axis" to mean "an axis along the functional length." That construction should be rejected as set forth above.

Further, also as set forth above, the line identified by Petitioner is not the longitudinal axis of Takeuchi under either parties' construction. At best, the longitudinal or functional axis of



Takeuchi is parallel to Takeuchi's heater. As such, Takeuchi does not disclose a heater that has "a central axis oriented substantially perpendicular to the longitudinal axis of the housing."

2. Claim 2

Because claim 2 depends from claim 1, Takeuchi fails to render claim 2 unpatentable at least for the reasons set forth with respect to claim 1.

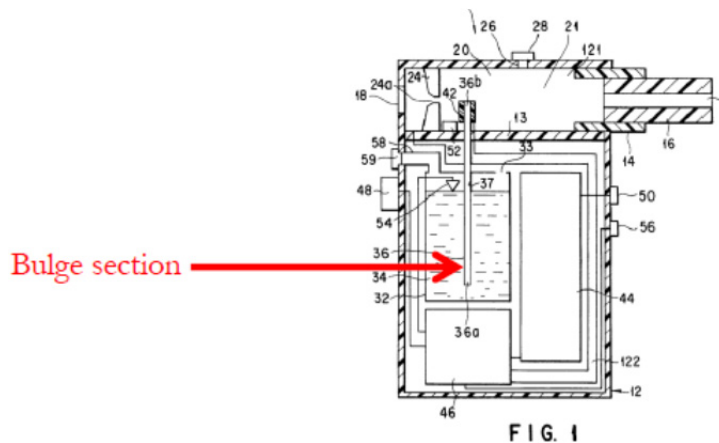
3. Claim 3

Because claim 3 depends from claim 1, Takeuchi fails to render claim 3 unpatentable at least for the reasons set forth with respect to claim 1.

4. Claim 6

Claim 6 recites "[t]he electronic cigarette of claim 1 with the porous body of atomizer projecting into the liquid supply comprising a porous bulge section." Because claim 6 depends from claim 1, Takeuchi fails to render claim 6 unpatentable at least for the reasons set forth with respect to claim 1.

Moreover, Takeuchi fails to teach a porous bulge section as claimed. Petitioner asserts that one end of the capillary tube 36 that is filled with porous material is a porous bulge section. Petition at 24, Figure below, annotations in original. Petitioner's assertion is dependent on the Board adopting Petitioner's construction of "bulge section" to mean "an extension section." But for the reasons set forth above, that construction should be rejected. Instead, "bulge section" should be construed to mean "a rounded mass thrusting out from the porous body." Under a proper construction, Takeuchi does not disclose the claimed "bulge section."



Knowing this, Petitioner also asserts that a "POSITA would have found it obvious to vary the shape [of the porous material] with a larger front section in order to increase contact area with the liquid supply." Petition at 24. Petitioner relies on its expert's statement that such an enlarged section would have "increase[d] the contact are between the atomizer and the liquid supply allowing easier liquid transport." Collins Decl. at ¶ 53 (Ex. 1040). But, there is no reason to increase the contact area between the porous material and the liquid supply beyond the size of the capillary tube because the flow rate is limited by the size of the

capillary tube. In short, increasing the contact area does not allow easier liquid transport.

5. Claim 7

Petitioner has not met its burden as to claim 7 because Takeuchi does not disclose “an electronic cigarette” “a longitudinal axis of the housing,” “an atomizer assembly in the housing between the inlet and the outlet,” “a heating wire in the atomizer,” or that heating wire “having a central axis oriented substantially perpendicular to a longitudinal axis of the housing” as set forth above with respect to claim 1.

6. Claim 8

Petitioner has not met its burden as to claim 8 because Takeuchi does not disclose “an electronic cigarette” “a longitudinal axis of the housing” “a heating wire,” or that heating wire “having a central axis oriented substantially perpendicular to a longitudinal axis of the housing” as set forth above with respect to claim 1.

C. Ground 2: Obviousness in View of Takeuchi and Gilbert

The Petitioner requests that claim 4 be cancelled as unpatentable under 35 U.S.C. § 103 over Takeuchi in view of Gilbert. Petition at 6. Because claim 4 depends from claim 1, Takeuchi fails to render claim 4 unpatentable at least for the

reasons set forth with respect to claim 1. Petitioner does not assert that Gilbert remedies those deficiencies of Takeuchi.

D. Ground 3: Obviousness in View of Takeuchi and Adiga

The Petitioner requests that claim 5 be cancelled as unpatentable under 35 U.S.C. § 103 over Takeuchi in view of Adiga. Petition at 6. For the reasons outlined below Petitioner has not met its burden of proof on this Ground.

Because claim 5 depends from claim 1, Takeuchi fails to render claim 5 unpatentable at least for the reasons set forth with respect to claim 1. Petitioner does not assert that Adiga remedies those deficiencies of Takeuchi.

E. Ground 4: Obviousness over Susa in view of Whittemore

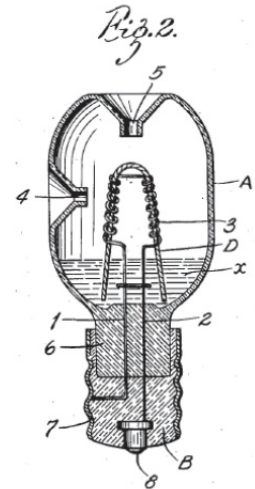
The Petitioner requests that claims 1–4 and 6–8 be cancelled as unpatentable under 35 U.S.C. § 103 over Susa in view of Whittemore. Petition at 6. For the reasons outlined below Petitioner has not met its burden of proof on this Ground.

1. Claim 1

Petitioner has not met its burden as to claim 1 because Susa in view of Whittemore lacks several claim limitations as described below.

a. Susa in view of Whittemore fails to disclose “a porous body projecting into the liquid supply”

Claim 1 requires “a porous body projecting into the liquid supply.” Because Susa does not disclose that limitation, Petitioner relies on Whittemore. However, Whittemore is not reasonably combined with Susa, even conceptually, because the combination would be non-functional. As shown in Figure 2, right, Whittemore can only be operated in an upright manner (vertically oriented manner) otherwise the medicament would empty out of orifice 4 or outlet 5. Because Susa is meant to be used vertically and in any orientation, the combination would be non-functional.



Also, there is no motivation to combine Susa and Whittemore in the claimed manner. Susa discloses a piezoelectric element (discharge head 34) that is used to provide small droplets of liquid to a ceramic heater 42 that is *spaced apart* from that discharge head 34. Specifically, Susa discloses a discharge head 34 that ejects liquid droplets through discharge port 35 as shown in Figure 3, right. Susa at ¶ 35 (Ex. 1008). In every embodiment of Susa,

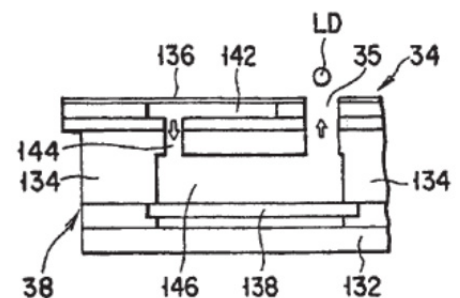
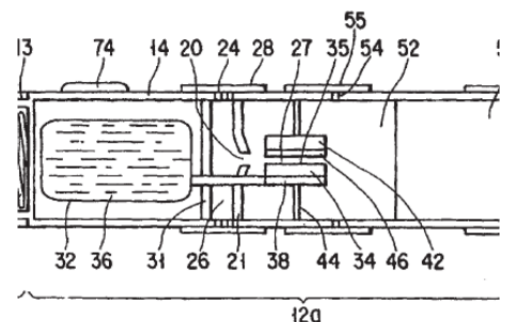


FIG. 3



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

Susa's use of a discharge head is to prevent leakage of the liquid material 36 from the material container 32 and to provide measured ejection of the liquid material 36. Neither requirement is satisfied if Susa's discharge head 34 is replaced by the Whittemore's wick because Whittemore suggests no way to prevent leakage (except maintaining Whittemore's device in an upright position) or to measure the amount of liquid ejected.

Because of those fundamental differences, Petitioner cannot suggest that one skilled in the art would replace Susa's discharge head 34 with Whittemore's wick. Instead, Petitioner proposes that one would have used Whittemore's wick to transport liquid to Susa's discharge head, which then transports the liquid to Susa's

heater. But there is simply no need for Whittemore's wick in Susa if it is not used to replace the component in Susa that transports the liquid to the heater.⁶

Therefore, it would not have been obvious, or even advantageous, to replace Susa's piezoelectric element with Whittemore's wick. Such a combination would not fulfill the requirements of Susa's piezoelectric element and would not function properly.

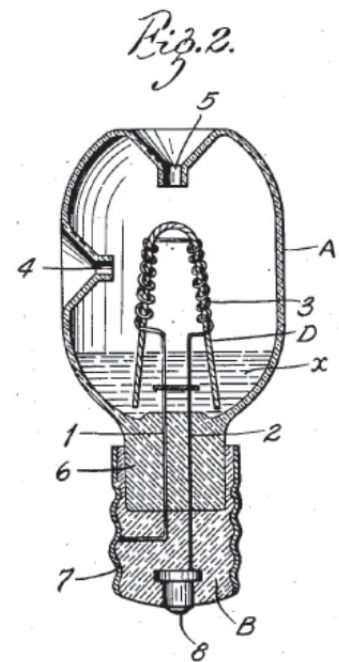
b. Susa in view of Whittemore fails to disclose “a heating wire in the atomizer having a central axis oriented substantially perpendicular to the longitudinal axis of the housing.”

Susa teaches that the “ceramic heater 42 is constituted by a ceramic plate and a coater resistance heater on the plate.” Susa at ¶38 (Ex. 1008). A coated resistance heater is not a heating wire. *See for example* http://falmer.com/?page_id=22, last visited November 17, 2014 (“Heater Coatings are electrical resistance heaters in the form of a coating, in contrast to most heaters that are in the form of a wire.”) (Ex. 2008). Susa does not disclose a heating wire, let alone the claimed orientation of such a wire.

⁶ Indeed, Petitioner also asserts that one skilled in the art would replace Susa's ceramic heater 42 with Whittemore's heating element 3. But Petitioner's combination of both with Susa would require separating the wick from the heating element and using the wick for a different purpose.

Petitioner also relies on Whittemore as disclosing “a heating wire in the atomizer having a central axis oriented substantially perpendicular to the longitudinal axis of the housing.” But, the combination of Whittemore and Susa is non-functional for the reasons set forth above such that one skilled in the art would not have combined the Susa and Whittemore references as claimed.

Moreover, even if one were to combine the references, Whittemore fails to disclose “a heating wire in the atomizer having a central axis oriented substantially perpendicular to the longitudinal axis of the housing.” Instead, Whittemore discloses a heating element 3 that is substantially parallel to the device’s longitudinal axis. As shown in Whittemore’s Figure 2, right. So, Petitioner points to a small section of the heating element 3 that connects the two sides of the heating element as having “a central axis oriented substantially perpendicular to the longitudinal axis of the housing.” Petition at 35. But, that portion is simply to complete the electrical connection of the two portions of the substantially parallel heating element. As shown in Figure 2, that section does not even contact the wick D and thus cannot be used to heat the liquid.



2. Claim 2

Because claim 2 depends from claim 1, Susa in view of Whittemore fails to render claim 2 unpatentable at least for the reasons set forth with respect to claim 1, above.

3. Claim 3

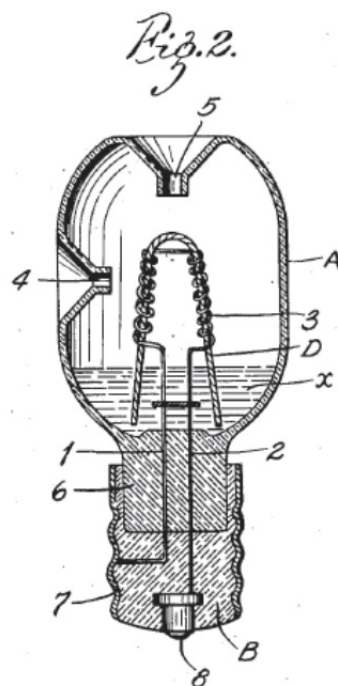
Because claim 3 depends from claim 1, Susa in view of Whittemore fails to render claim 3 unpatentable at least for the reasons set forth with respect to claim 1, above.

4. Claim 4

Because claim 4 depends from claim 1, Susa in view of Whittemore fails to render claim 4 unpatentable at least for the reasons set forth with respect to claim 1, above.

5. Claim 6

Claim 6 requires that the “porous body of the atomizer projecting into the liquid supply comprises a porous bulge section.” Neither Susa nor Whittemore disclose that limitation. Petitioner relies on the end of Whittemore’s wick D, right, as supposedly disclosing the bulge section. Petition at 40. But, the wick D is uniform



in shape and simply has an end that extends into the liquid supply. That end is not “a porous bulge section” as claimed.

One skilled in the art would not have modified Whittemore’s wick to have a bulge section, because the fluid transport provided by the wick is limited by the size of the rest of the wick. There would be no reason to increase any portion of the wick to form a bulge section as claimed because it would not result in a meaningful increase in liquid transport.

Moreover, the combination of Whittemore and Susa is non-functional for the reasons set forth above such that one skilled in the art would not have combined the Susa and Whittemore as claimed.

6. Claim 7

Petitioner has not met its burden as to claim 7 because Susa and Whittemore lack several claim limitations including “a porous body extending into the liquid supply” and “a heating wire in the atomizer having a central axis oriented substantially perpendicular to the longitudinal axis of the housing” as discussed above with respect to claim 1.

7. Claim 8

Petitioner has not met its burden as to claim 8 because Susa and Whittemore lack several claim limitations including “a porous body extending into the liquid supply” and “a heating wire in the atomizer having a central axis oriented

substantially perpendicular to the longitudinal axis of the housing” as discussed above with respect to claim 1.

F. Ground 5: Obviousness over Susa in view of Whittemore and Adiga

The Petitioner requests that claim 5 be cancelled as unpatentable under 35 U.S.C. § 103 over Susa in view of Whittemore in view of Adiga. Petition at 6. Claim 5 depends from claim 1 and is thus patentable for at least the same reasons set forth above with respect to claim 1. Adiga does not remedy the deficiencies of either Susa or Whittemore.

G. Ground 6: Obviousness over Voges in view of Gehrer

The Petitioner requests that claims 1–8 be cancelled as unpatentable under 35 U.S.C. § 103 over Voges in view of Gehrer. Petition at 7. For the reasons outlined below Petitioner has not met its burden of proof on this Ground.

1. Claim 1

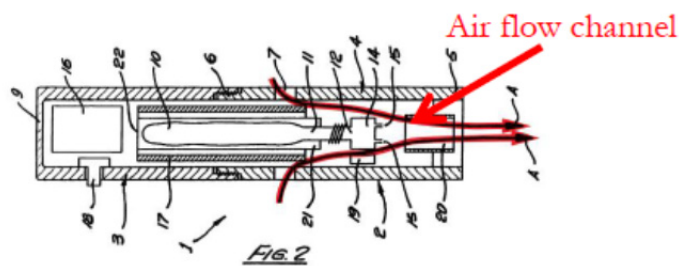
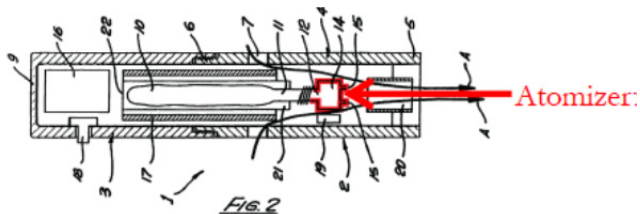
Petitioner has not met its burden as to claim 1 because Voges and Gehrer lack several claim limitations as further described below.

a. Voges in view of Gehrer fails to disclose “an atomizer assembly in the housing between the inlet and the outlet”

As set forth above, both claims 1 and 7 make clear that the limitations “an airflow channel in the housing connecting the inlet to the outlet” and “an atomizer

in the housing between the inlet and the outlet” require that air must flow from the inlet, through the atomizer, and then to the outlet.

As shown in the Petition, Voges does not disclose air channel flow from the inlet through the atomizer to the outlet. Petitioner alleges that the device 14 is the claimed atomizer. Petition at 48, figure right, annotation in original.



But as Petitioner admits and illustrates, the airflow channel in Voges goes from the inlet to the outlet, bypassing the alleged atomizer (device 14). Petition at 47, figure above, annotation in original.

Petitioner does not allege that Gehrer discloses this claim limitation. Indeed, Petitioner admits that Voges alleged atomizer (device 14) is not in the airflow channel between the inlet and outlet by asserting that the space within that device 14 meets the “cavity” limitation of claim 3 under Petition’s proposed construction of “cavity.” Petition at 20–21. Petitioner proposes that the claimed “cavity” must be “separate from [the] air flow.” Petition at 9. While Petitioner’s construction for “cavity” is incorrect as set forth above, Petitioner’s admission that Voges’ alleged atomization cavity is separate from the air flow channel

demonstrates that Takeuchi fails to disclose the limitation “an atomizer in the housing between the inlet and the outlet” as claimed.

Accordingly, Petitioner fails to meet its burden of proof to set forth a prima facie case of obviousness and the Board should not institute Ground 1.

b. Voges and Gehrer do not teach “a porous body projecting into the liquid supply.”

Voges does not disclose a porous body so Petitioner relies on Gehrer. However, Gehrer is non-analogous art. From MPEP 2141.01(a):

a reference is analogous art to the claimed invention if: (1) the reference is from the same field of endeavor as the claimed invention (even if it addresses a different problem); or (2) the reference is reasonably pertinent to the problem faced by the inventor (even if it is not in the same field of endeavor as the claimed invention). See Bigio, 381 F.3d at 1325, 72 USPQ2d at 1212.

Gehrer is not from the same field of endeavor as it relates to an ink container and not an electronic cigarette or even atomizer. Further, Gehrer is not relevant to the problem faced in the claimed invention, that is, how to atomize nicotine. Gehrer instead is directed to transporting ink. In other words, Gehrer is directed to transporting a liquid ink, not atomizing that liquid ink. Atomizing the ink in Gehrer would inherently render Gehrer nonfunctional.

Moreover, Voges expressly teaches away from “a porous body projecting into the liquid supply.” The purpose of the “porous body projecting into the liquid supply” in the claims is to transport liquid from the liquid supply to the heating

element via capillary action. '628 patent at 3:60–63 (Ex. 1001). Voges recognizes devices with a “porous carrier” and devices where “a nicotine containing substance is heated to vaporize an amount of nicotine” for inhalation. Voges criticizes those devices as not providing “a satisfactory means of adjusting both the quantity of nicotine delivered in each puff in response to user demand and/or maintaining adequate precision and accuracy in the dose quantum metered out. Further the devices have failed adequately to mimic the sensations obtained during smoking.” Voges at 3:1–6 (Ex. 1011).

Voges discloses that the solution in container 10 is attached to a droplet ejection device 14 via a “spiggot (sic) shaped outlet and coupling 11.” Voges’ ejection device is controlled by a control means 16 that causes the ejection device to output a controlled dose based on preprogrammed parameters or algorithms. Voges at 5:64–6:19 (Ex. 1011). There is simply no reason to include a porous body in Voges, particularly when Voges states that devices with “porous carriers” do not work.

Moreover, Petitioner has not articulated any reason why one skilled in the art would have combined Gehrler and Voges in the claimed manner. Petitioner asserts that it was well known that it is “beneficial to include a mechanism to maintain pressure equilibrium within a liquid supply that prevents leaking out of liquid when the device is inactive, and drying out of liquid facing surfaces.” Petition at

45. While, as Petitioner asserts, “a POSITA would have recognized that Gehrер discloses a simple, reliable, and economical ink delivery system,” Petition at 45, such an ink delivery system would not be used in an electronic cigarette as claimed.

First, Petitioner’s motivation to combine is that Gehrер discloses a capillary body that functions as a pressure equalizer. Petition at 45. Specifically, Petitioner refers to “capillary body 18” of Figure 3. But, Petitioner never asserts that one would have included Gehrер’s pressure equalizer in Voges.

Instead, Petitioner asserts that one would have combined Gehrер’s ink conducting elements 37 and 38. Petition at 48. The purpose of those ink conducting elements is, as Petitioner states, to prevent “drying out of liquid facing surfaces.” Specifically, Gehrер recites one of its objects is “to connect the ink facing end of the capillary body and/or the ink facing surface of the capillary coupling through an ink conducting element such as a wick to the bottom of the ink reservoir so as to avoid a dry out of the ink facing surfaces.” Gehrер at 2:17–21 (Ex. 1012). Petitioner provides no reason why dry out is an issue in Voges, let alone how including Gehrер’s wick in Voges addresses that issue. As set forth above, there is no need for the wick in Voges and Voges teaches against such a combination.

c. Voges and Gehrler do not teach “a heating wire.”

Petitioner relies on the Voges’ disclosure of a “thin film resistor” as disclosing the claimed “heating wire” stating that “thin film resistors necessarily and inherently include thin film wires.” Petition at 51. But, Voges states that its ejection device uses thin film resistors, not heating wires. “Briefly, a typical thermal device consists of a liquid-containing chamber provided with an array of twelve coaxially divided nozzles and has twelve thin film resistors, a resistor being located directly behind each nozzle.” Voges at 4:6-8 (Ex. 1011).

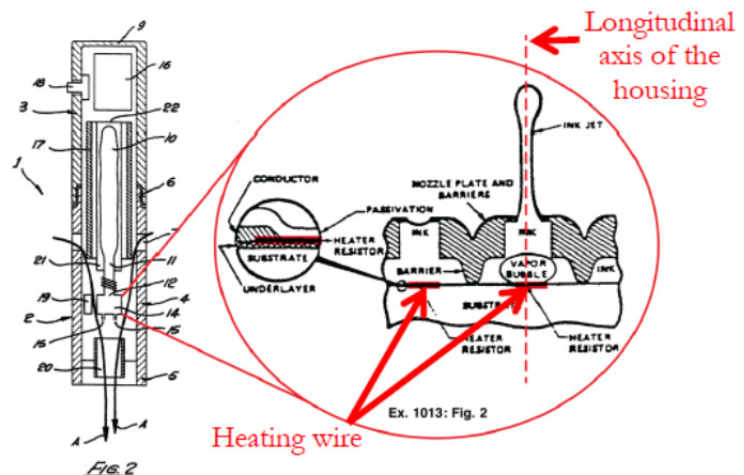
Petitioner relies on its expert’s testimony as the sole support for the proposition that “thin film resistors necessarily and inherently include thin film wires.” Petition at 51. Petitioner’s expert parrots Petitioner’s statement without explanation citing two patents in support. Collins Decl. at ¶ 40 (Ex. 1040). The first patent, Kanke, actually distinguishes a heating wire from a thin film resistor stating that a “heating resistor is constructed by winding a platinum wire around a bobbin and then coating the wire with glass, or by forming a thin film resistor on a ceramic substrate or a silicon substrate.” Kanke at 1:23–26 (Ex. 1034). The second patent, Dux, does not note use the term “wire” at all. Instead, Dux refers to “thin film wiring” in an integrated circuit. Dux uses the term “wiring” to refer to electrical connections on the integrated circuit board. Dux does not state or imply

that those connections are formed by wires and no wires are used in Dux's processes. Dux at 3:26–62 (Ex. 1035).

Moreover, one skilled in the art would not have replaced Voges' thin film resistors with a heating wire. Petitioner relies on a Thermal Inkjet Print Cartridge Designer Guide as disclosing the

particular orientation of the heating wire. The Designer guide shows the thin film resistors in the figure, right.

Petition at 50 (annotations in original). As seen in the figure,



the thin film resistor, the alleged heating wire, is comparable to the size of a vapor bubble. Thermal Inkjet Print Cartridge Designer Guide at 14 (referring to a “Scanning electron micrograph of the nozzle plate.”) (Ex. 1013). One skilled would not have replaced a thin film resistor having those dimensions with a heating wire. Doing so would require a complete redesign of Voges' ejector.

- d. **Voges and Gehrer fail to disclose “a heating wire in the atomizer having a central axis oriented substantially perpendicular to the longitudinal axis of the housing.”**

Claim 1 requires “a heating wire in the atomizer having a central axis oriented substantially perpendicular to the longitudinal axis of the housing.” Again

Petitioner relies on the combination of Voges and the Thermal Inkjet Print Cartridge Designer Guide as disclosing the particular orientation of the heating wire. Petition at 50. As set forth above, neither reference discloses a heating wire.

But assuming that the thin film resistor is a heating wire, Voges does not show any orientation for the thin film resistor. Moreover, there is nothing in Voges disclosing how the references would be combined, or specifically requiring a particular orientation for the heating if they are combined.

And, assuming that the two references are combined in a particular manner, the thin film resistor in the Thermal Inkjet Print Cartridge Designer Guide is disclosed to be about the size of a vapor bubble. Petition at 50. That resistor is designed to vaporize a single bubble of ink at a discrete point. Even if one could determine the orientation of the thin film resistor at its microscopic level, that orientation has no relation to the claimed heating wire having a “central axis oriented substantially perpendicular to the longitudinal axis of the housing.” To the contrary Voges’ thin film resistor is configured to vaporize ink at a discrete point, it does not extend along any particular orientation.

2. Claim 2

Because claim 2 depends from claim 1, Voges and Gehrler fail to render claim 2 unpatentable at least for the reasons set forth with respect to claim 1.

3. Claim 3

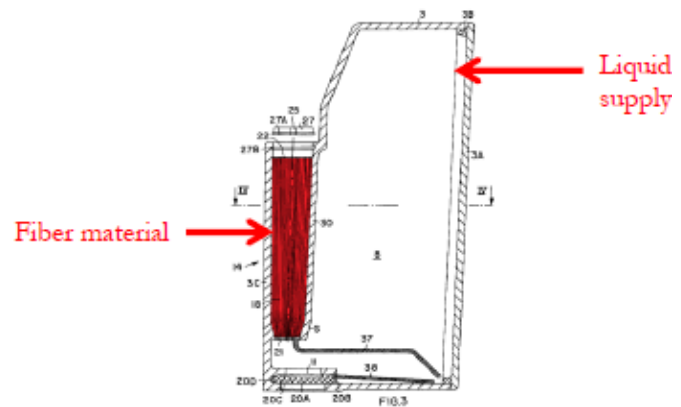
Because claim 3 depends from claim 1, Voges and Gehrler fail to render claim 3 unpatentable at least for the reasons set forth with respect to claim 1.

4. Claim 4

Because claim 4 depends from claim 1, Voges and Gehrler fail to render claim 4 unpatentable at least for the reasons set forth with respect to claim 1.

5. Claim 5

Petitioner relies on Gehrler to teach that the liquid supply comprises a fiber material. Besides the fact that Gehrler is non-analogous art as mentioned above, Gehrler fails to teach this limitation. Petitioner at 55 states that the fiber material is the capillary body 18. However, the capillary body is not in the liquid supply (reservoir 8) as Petitioner admits at 56 in marked-up Figure 3, right. As shown, reservoir 8 (liquid supply as identified by Petitioner) is separated from the fiber material (capillary body 18) by a separation wall 30.



6. Claim 6

Voges and Gehrler fail to teach that the porous body of the atomizer projecting into the liquid supply comprises a porous bulge section. Petitioner relies on ink conducting element 38 as disclosing the “porous bulge section.” But, even assuming Gehrler is analogous art, no bulge is shown or suggested in Gehrler, let alone that Voges would have been modified to include Gehrler’s ink conduction element or that Gehrler’s ink conduction element would have been modified to have the claimed “bulge section.”

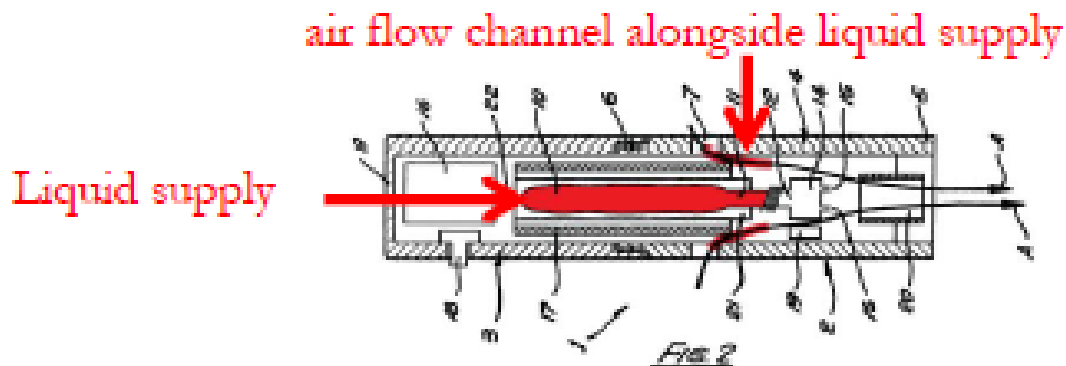
7. Claim 7

Petitioner has not met its burden as to claim 7 because Voges and Gehrler do not disclose “an atomizer in the housing between the inlet and the outlet” “a porous body [projecting/extending] into the liquid supply,” “a heating wire in the atomizer” or that heating wire “having a central axis oriented substantially perpendicular to a longitudinal axis of the housing” as set forth above with respect to claim 1.

Voges and Gehrler also lack the claim limitations further described below.

- a. **Voges and Gehrler fail to disclose “with part of the air flow channel extending alongside of the liquid supply.”**

As Petitioner shows in marked-up Figure 2 of Voges in the Petition at page 58 (reproduced below), the air flow channel extends alongside the battery 17, which circumscribes the liquid supply (container 10).



8. Claim 8

Petitioner has not met its burden as to claim 8 because Voges and Gehrler do not disclose “a porous body [projecting/extending] into the liquid supply,” “a heating wire in the atomizer” or that heating wire “having a central axis oriented substantially perpendicular to a longitudinal axis of the housing” as set forth above with respect to claim 1.

IV. Petitioner Raises the Same Arguments That the Patent Office Considered During Prosecution

Petitioner relies on references and arguments that are the same or substantially the same as those previously considered by the Patent Office during

prosecution of the '628 patent. For that reason, the Board should deny the Petition. *See* 35 U.S.C. § 325(d).

Each of the Petition's eight proposed grounds for unpatentability is based on arguments that were already considered by the Patent Office. Grounds 1-5 point to the same prior art that was before the Patent Office. Ground 1 is based solely on Takeuchi (Ex. 1003). Ground 2 is based on Takeuchi in combination with Gilbert (Ex. 1009). Ground 3 is based on Takeuchi in combination with Adiga (Ex. 1007). Ground 4 is based on Susa (Ex. 1008) in view of Whittemore (Ex. 1004). Ground 5 is based on Susa in view of Whittemore and further in view of Adiga. Foreign counterparts to Takeuchi, EP0893071 (Ex. 2009), and Adiga, WO200334847 (Ex. 2010), containing nearly identical disclosures, as well as the Gilbert, Susa and Whittemore references, were submitted to the Patent Office in an October 4, 2012 Information Disclosure Statement and marked as considered by the Examiner during prosecution of the '628 patent (Ex. 1002).

Similarly, Ground 6 should be denied because Voges (Ex. 1011) was considered by the Patent Office and Gehrer (Ex. 1012) is cumulative of other prior art that the Patent Office considered. Ground 6 is based on Voges and Gehrer and applies to claims 1 to 8. During the prosecution of the '628 patent, Voges was explicitly cited in the October 4, 2012 Information Disclosure Statement and was marked as considered by the Examiner (Ex. 1002). Petitioner relies on Gehrer as

teaching the same claim limitations as Whittemore, which was already considered by the Patent Office. Petition at 40-41 (Whittemore), 48-49 (Gehrer). In view of Petitioner's arguments, Gehrer is cumulative of prior art that was already considered by the Patent Office.

Petitioner seeks to recycle arguments and prior art previously considered during prosecution of the '628 patent, in an effort to persuade the Board that the prior art presented in the Petition, and related combinations, were not considered in prosecution of the '628 patent. But as demonstrated above, Petitioner is rehashing ground already covered by the Patent Office. Because the same or substantially the same prior art and arguments were previously presented to the Office and considered by the Examiner during prosecution of the '628 patent, the Board should deny the Petition.

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V. CONCLUSION

Therefore, for the reasons discussed above, Patent Owner requests that the Board deny NJOY's Petition for *inter partes* review of the '628 patent.

Respectfully submitted,

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that a copy of this Patent Owner Preliminary Response to Petition for *Inter Partes* Review of U.S. Patent No. 8,490,628 has been served via electronic mail upon the following counsel of record for Petitioner NJOY, Inc. on November 20, 2014:

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