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Paper 66
Entered: June 30, 2014

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

REDLINE DETECTION, LLC
Petitioner,

v.

STAR ENVIROTECH, INC.
Patent Owner.

Case IPR2013-00106
Patent 6,526,808 B1

Before JENNIFER S. BISK, JAMES B. ARPIN, and BRIAN P. MURPHY,
Administrative Patent Judges.

ARPIN, *Administrative Patent Judge.*

FINAL WRITTEN DECISION
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

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I. BACKGROUND

A. *Introduction*

Redline Detection, LLC (“Petitioner”) filed a corrected petition to institute an *inter partes* review of claims 9 and 10 of Patent No. US 6,526,808 B1 (Ex. 1001; “the ’808 patent”) pursuant to 35 U.S.C. §§ 311-319 (Paper 8; “Pet.”). Star Envirotech, Inc. (“Patent Owner”) timely filed a patent owner preliminary response (Paper 13; “Prelim. Resp.”), in which it argued that the petition should be denied, among other reasons, on the equitable grounds of assignor estoppel. On July 1, 2013, we instituted a trial for claims 9 and 10 of the ’808 patent, on two grounds of unpatentability. Paper 17 (“Dec.”).

On October 1, 2013, Patent Owner filed a patent owner response (Paper 41; “PO Resp.”), and, subsequently, Petitioner filed a reply to the patent owner response (Paper 54; “Pet. Reply”). Finally, Petitioner filed a motion to exclude evidence (Paper 56), to which Patent Owner filed an opposition (Paper 60; “PO Opp. Pet. Mot. Excl.”). Petitioner then filed a reply (Paper 61) to Patent Owner’s opposition to the motion to exclude evidence.

Pursuant to requests from both parties (Papers 55 and 58), an oral hearing was held on April 1, 2014. A transcript of that oral hearing is included in the record as Paper 65 (“Tr.”).

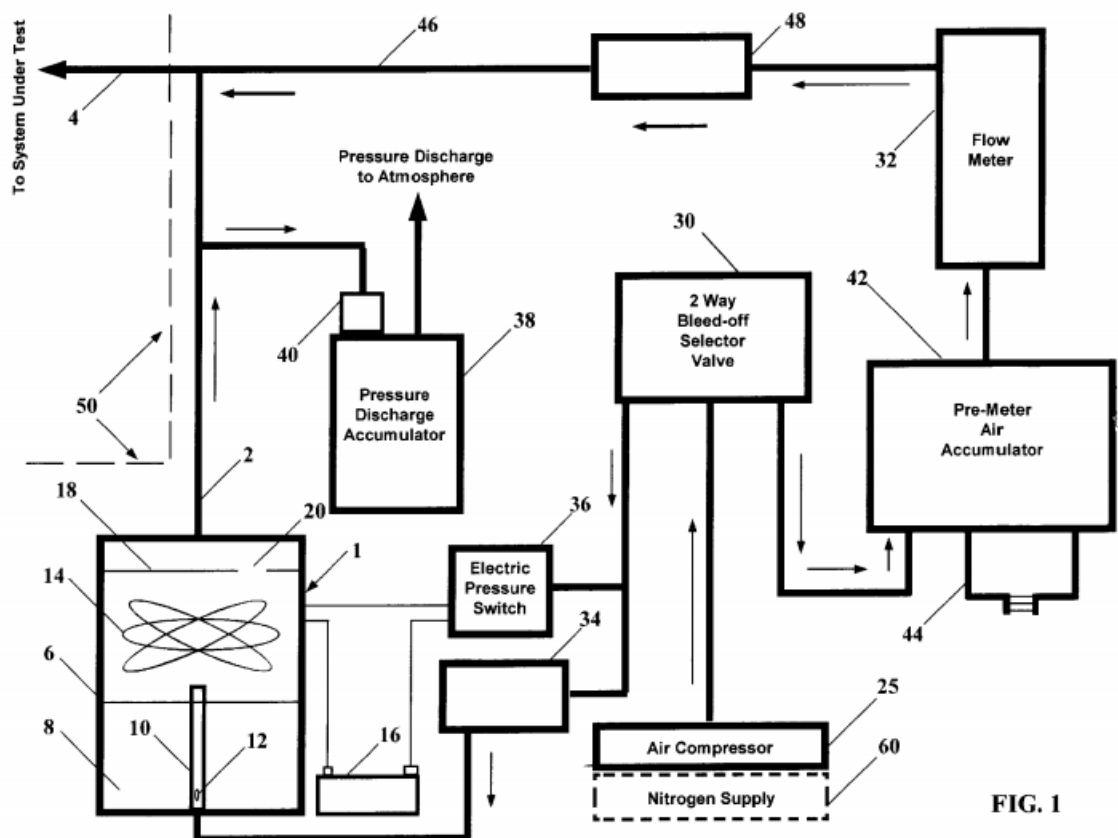
We have jurisdiction under 35 U.S.C. § 6(c). We issue this final written decision pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. We determine that Petitioner fails to show by a preponderance of the evidence that claims 9 and 10 are unpatentable. Petitioner’s motion to exclude is *denied-in-part* and otherwise *dismissed* as moot.

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B. The '808 Patent

The '808 patent relates to methods for generating smoke for use in a volatile, potentially explosive environment. Ex. 1001, col. 6, ll. 44-67. In particular, the '808 patent describes methods for generating smoke, in which a flammable fluid is vaporized into smoke in an inert environment created within a closed smoke producing chamber. *Id.* at col. 2, ll. 8-13; col. 6, ll. 54-57.

A system, suitable for use in performing such methods, is illustrated in Figure 1, reproduced below:



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Figure 1 depicts a schematic of smoke and clean air generating apparatus 1 for verifying the presence and detecting the location of leaks in a fluid system under test. *Id.* at col. 2, ll. 62-65. Apparatus 1 comprises sealed chamber 6 containing a non-toxic oil supply 8. *Id.* at col. 3, ll. 25-27. Air inlet tube 10 projects upwardly from the bottom of chamber 6 and extends above the level of oil supply 8. *Id.* at col. 3, ll. 27-28. Chamber 6 further comprises resistor heating grid (e.g., coil) 14, as well as fluid baffle 18, having smoke outlet orifice 20. *Id.* at col. 3, ll. 32-33, 35-36. Both heating grid 14 and baffle 18 extend laterally across chamber 6, and baffle 18 is disposed above heating grid 14. *Id.* at col. 3, ll. 32-40.

In an embodiment, air from air compressor 25 may be delivered via air inlet tube 10 at a sufficient rate to cause some of the oil from oil supply 8 to be drawn through oil inlet orifice 12 into inlet tube 10. *Id.* at col. 3, ll. 41-46. The mixture of compressed air and oil then is blown upwardly and outwardly from inlet tube 10 towards and into contact with heated grid 14. *Id.* at col. 3, ll. 46-50. Upon contacting heated grid 14, the oil is vaporized instantaneously into smoke, and the rising smoke passes through orifice 20 in baffle 18 and is taken up by smoke outlet line 2. *Id.* at col. 3, ll. 50-52. Smoke from outlet line 2 may be conveyed via smoke supply line 4 to a system undergoing testing. *Id.* at col. 3, ll. 52-56.

In another embodiment,

gases *other than air* may be supplied to the air inlet tube **10** of apparatus **1** to cause a mixture of such gas and oil to be blown towards the heating grid **14**. . . . *As an alternative to pressurized air*, carbon dioxide or nitrogen gas from a pressure and flow regulated tank or bottle **60** can be used because of their non-flammable and *inert* characteristics. . . . Moreover, producing smoke with nitrogen gas rather than air would enable a variety of high pressure systems . . . *to*

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be tested at high operating temperatures but without the inherent risks of explosion.

Id. at col. 6, ll. 46-67 (emphases added). Thus, the '808 patent describes at least two embodiments: one in which smoke is produced using pressurized air and another in which smoke is produced using *another* gas, such as carbon dioxide or nitrogen, *instead of air*.

C. *Prior Art Relied Upon*

Petitioner relies upon the following prior art references:

Gilliam	US 5,107,698	Apr. 28, 1992	(Ex. 1005)
Pauley ¹	GB 640,266	July 19, 1950	(Ex. 1010)
Stoyle ²	GB 1,240,867	July 28, 1971	(Ex. 1008)

APPLICATIONS FOR THE SMOKE GENERATOR (Jan. 28, 1999),
<http://www.smokemachines.com> (“the 1999 Website”) (Ex. 1013)

¹ Petitioner refers to this reference as “GB ‘266” in the petition (Pet. 4), and Patent Owner refers to this reference as “the Pauley Patent” in the patent owner preliminary response (Prelim. Resp. 15). In this decision, we refer to this reference as “Pauley” or Ex. 1010.

² Petitioner refers to this reference as “GB ‘867” in the petition (Pet. 4), and Patent Owner refers to this reference as “the Stoyle Patent” in the patent owner preliminary response (Prelim. Resp. 15). In this decision, we refer to this reference as “Stoyle” or Ex. 1008.

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We instituted trial on the following grounds of unpatentability:

References	Basis	Claims Challenged
Gilliam and Stoye	§ 103(a)	9 and 10
Gilliam, Pauley, and the 1999 Website	§ 103(a)	9 and 10

II. CLAIM ANALYSIS

A. *Challenged Claims*

Of the challenged claims, claim 9 is independent, and claim 10 depends directly from independent claim 9. During a first reexamination of the '808 patent, claim 9 was amended, and claim 10 was added. Ex. 1001 (Ex Parte Reexamination Certificate No. US 6,526,808 C1). The patentability of these claims later was confirmed during a second reexamination of the '808 patent. Ex. 1001 (Ex Parte Reexamination Certificate No. US 6,526,808 C2). Because only these two claims are presented for *inter partes* review in the petition, both claims 9 and 10 are reproduced below to demonstrate the claimed subject matter (emphases showing material added during reexamination in italics and material deleted during reexamination in brackets):

9. A method for generating smoke for use at a volatile, potentially explosive environment, said method comprising the steps of:

locating a heating element within a closed smoke producing chamber, said smoke producing chamber having a gas inlet and a smoke outlet;

delivering a flammable fluid to said heating element within the closed smoke producing chamber;

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energizing said heating element for vaporizing into smoke [and] *within the closed smoke producing chamber* the flammable fluid that is delivered thereto;

blowing a supply of non-combustible gas under pressure into the closed smoke producing chamber by way of said gas inlet thereof for (1) creating an inert environment within said chamber so as to prevent ignition and thereby avoid the possibility of an explosion when said flammable fluid is vaporized into smoke by said heating element and (2) for carrying the smoke to the volatile potentially [hazardous] *explosive* environment by way of the smoke outlet of the closed smoke producing chamber, *said volatile potentially explosive environment being a closed system undergoing testing for leaks; and*

connecting the smoke outlet of said closed smoke producing chamber to the closed system undergoing testing, said supply of non-combustible gas for creating an inert environment within the closed system to which the smoke is carried, said inert environment with the closed system preventing ignition within the closed system during the testing thereof;

wherein the closed system to be tested for leaks at the volatile, potentially explosive environment is the evaporative system of a motor vehicle including a fuel tank, further comprising delivering smoke from the smoke outlet of said smoke producing chamber to the fuel tank.

10. *The method for generating smoke recited by Claim 9, comprising the additional step of regulating the pressure at which the smoke is carried by said non-combustible gas from said closed smoke producing chamber to the closed system undergoing testing.*

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B. Claim Construction

1. Principles of Law

Consistent with the statute and legislative history of the Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (“AIA”), the Board interprets claims using the broadest reasonable construction in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b); *see also* Office Patent Trial Practice Guide, 77 Fed. Reg. 48,756, 48,766 (Aug. 14, 2012). Under the broadest reasonable construction standard, claim terms are presumed to have their ordinary and customary meaning as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *In re Translogic Tech. Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). An inventor may rebut that presumption by providing a definition of the term in the specification with reasonable clarity, deliberateness, and precision. *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994). In the absence of such a definition, limitations are not to be read from the specification into the claims. *In re Van Geuns*, 988 F.2d 1181, 1184 (Fed. Cir. 1993).

2. Claim Terms

For purposes of our decision to institute *inter partes* review, we set forth initial claim constructions for several disputed claim terms. We now construe those terms under the broadest reasonable interpretation standard for this final written decision. Nevertheless, to the extent that the parties do not dispute our constructions of claim terms or have indicated that the terms need not be construed expressly to support their arguments, we adopt the constructions set forth in the decision to institute.

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a. Flammable Fluid

Independent claim 9 recites the step of “delivering a *flammable fluid* to said heating element within the closed smoke producing chamber” (emphasis added). The Specification does not define, or even recite, the term “flammable fluid.” Instead, the ’808 patent generally describes vaporizing an oil, such as a non-toxic oil, in a closed smoke producing chamber to produce smoke. Ex. 1001, col. 3, ll. 25-27. A pertinent definition of the word “flammable” is “easily set on fire; combustible.” RANDOM HOUSE WEBSTER’S COLLEGE DICTIONARY 497 (2nd Random House ed. 1999) (Ex. 3001); *see also* MCGRAW-HILL DICTIONARY OF SCIENTIFIC AND TECHNICAL TERMS 727 (4th ed. 1988) (Ex. 3002) (“[o]f material, capable of supporting combustion”). Further, a pertinent definition of the word “combustible” is “*capable* of catching fire and burning.” RANDOM HOUSE WEBSTER’S COLLEGE DICTIONARY at 263 (emphasis added) (Ex. 3001). Similarly, a pertinent definition of the word “fluid” is “a substance, as a liquid or gas, that is capable of flowing and that changes shape at a steady shape when acted upon by a force.” *Id.* at 504.

For purposes of this decision, we again conclude that the broadest reasonable interpretation of the term “flammable fluid” is a fluid, including a liquid or gas (e.g., an oil), capable of catching fire and burning. Both parties accept this construction. *See* Tr. 11:19-12:12 (Counsel for Patent Owner discussing the difference between flammable and nonflammable fluids); 49:7-11 (“Yeah. I think [Petitioner] was right there. Everything’s flammable.”).

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b. Locating

Independent claim 9 recites the step of “*locating* a heating element within a closed smoke producing chamber.” (emphasis added). For purposes of this decision, we again conclude that the broadest reasonable interpretation of the term “locating” is to establish an element in a position, situation, or locality. Dec. 11-12 (construing “locating”). Neither party challenges this construction. *See* Tr. 33:22-34:2 (Petitioner stating that “[l]ocating is to establish an element in a position situation or locality.”)

c. Closed

Independent claim 9 recites the step of “delivering a flammable fluid to said heating element within the *closed* smoke producing chamber” and “connecting the smoke outlet of said closed smoke producing chamber to the *closed* system undergoing testing.” (emphases added). For purposes of this decision and consistent with the Specification, we again conclude that the broadest reasonable interpretation of the term “closed” is an adjective describing a chamber or other container the entrances, apertures, or gaps of which have been stopped or obstructed, e.g., sealed. Again, neither party challenges this construction. *See* Tr. 35:10-24 (Petitioner arguing that, “[w]hen you take the gas cap off, it is not a closed system.”); *cf.* Ex. 2018 ¶ 98 (describing tubular member *d* of Pauley as open on both ends).

d. Smoke

Independent claim 9 recites the step of “energizing said heating element *for vaporizing into smoke* within the closed smoke producing chamber *the flammable fluid that is delivered thereto*” (emphases added). Petitioner agrees with the

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interpretation of the term “smoke,” as set forth in our decision to institute — “a vapor or mist produced by blowing a flammable liquid against a heating element”— and argues that it is consistent with the use of that term in the challenged and the unchallenged claims (claims 1-8), as well as in the Specification. Tr. 6:17-25. Patent Owner argues that a broader interpretation of “smoke” is appropriate, and, in particular, an interpretation that is not limited to *the manner in which the smoke is produced*. *Id.* at 58:2-9.

For purposes of the decision, we agree with Patent Owner. *See* RANDOM HOUSE WEBSTER’S COLLEGE DICTIONARY at 1237 (Ex. 3001) (defining “smoke” as the visible vapor and gases given off by a burning substance, esp. the mixture of gases and suspended carbon particles resulting from the combustion of wood or other organic matter . . . something resembling this, as a vapor or mist.”); *cf.* Ex. 1011, 21 (defining “Fog” and “Mist”). *But see* Ex. 1011, 22 (“**Smoke:** small, solid particles dispersed in air that reduce visibility and reflect light.”). We interpret the term “smoke” broadly as visible vapor or mist, e.g, particles or droplets suspended in the atmosphere, or gases. Nevertheless, we note that, within the context of challenged claims 9 and 10, “smoke” is produced by “delivering a flammable fluid to said heating element,” i.e., blowing a flammable liquid against a heating element. Ex. 1001, col. 2, ll. 8-13, col. 4, ll. 40-45.

e. Inert Environment

Independent claim 9 recites the steps of “creating *an inert environment* within said chamber *so as to prevent ignition and thereby avoid the possibility of an explosion* when said flammable fluid is vaporized into smoke by said heating element” and “creating *an inert environment* within the closed system to which the

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smoke is carried, said inert environment with the closed system *preventing ignition* within the closed system during the testing thereof” (emphases added). The parties do not dispute the construction of the term “inert environment” adopted in the decision to institute. *See* Dec. 13-14. Therefore, we again interpret the term “inert environment” as an environment formed within the closed smoke producing chamber and comprising a non-combustible gas, such as carbon dioxide or nitrogen, in which a vapor or mist of flammable fluid is suspended, in such a manner that the flammable fluid *cannot* ignite or explode.

III. ANALYSIS

For the reasons described below, we determine that Petitioner fails to demonstrate by a preponderance of the evidence that each of claims 9 and 10 is unpatentable as rendered obvious over Gilliam and Stoye or over Gilliam, Pauley, and the 1999 Website. Moreover, we are not persuaded by Patent Owner that Petitioner is barred from pursuing this case under the equitable doctrine of assignor estoppel.

A. Assignor Estoppel

Patent Owner contends that Kenneth Alan Pieroni, a named inventor and assignor of the '808 patent, is the founder and a current officer of Petitioner. PO Resp. 52; Prelim. Resp. 3-4. Patent Owner further contends that Mr. Pieroni is in privity with Petitioner. PO Resp. 53; Prelim. Resp. 2-4. Therefore, Patent Owner contends that Petitioner should be barred from pursuing an *inter partes* review of the '808 patent under the equitable doctrine of assignor estoppel. PO Resp. 53-54; Prelim Resp. 4-6.

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In response to Patent Owner's motion for additional discovery on the issue of assignor estoppel, and after consideration of our statutory mandate, the guidance provided by the U.S. Supreme Court and the U.S. Court of Appeals for the Federal Circuit, relevant decisions by U.S. district courts, and the Board's rules, we concluded that the equitable defense of assignor estoppel is not available in an *inter partes* review. Dec. Mot. Add. Disc. 4. Patent Owner argued against this conclusion and our denial of the motion for additional discovery, in a request for rehearing on our denial of its motion. PO Req. Reh'g (Paper 32). We were unpersuaded by Patent Owner's arguments. *See* Dec. on Req. Reh'g (Paper 40) 5. After consideration of Patent Owner's arguments and supporting evidence presented in its response to the petition (PO Resp. 51-60), we remain unpersuaded. *See* Order Trial Hearing 2.

B. Obviousness Analysis

A patent claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) where in evidence, so-called secondary considerations. *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17-18 (1966).

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1. *The Level of Ordinary Skill in the Art*

Because the determination of the level of ordinary skill in the art is an applicable *Graham* factor to both combinations of the prior art here under review, we begin our analysis with that determination. Patent Owner opposes the proposed combinations of the applied references and argues that Petitioner fails to establish the level of ordinary skill in the art in support of the combination of the teachings of the applied references. PO Resp. 3-5.

Patent Owner argues that Petitioner fails to offer testimony or other evidence to establish the level of ordinary skill in the relevant art. *Id.* at 4. Nevertheless, Petitioner asserts, and Patent Owner acknowledges, that “the level of skill [in the art might] be gleaned from the prior art itself.” *Id.* (citing *Litton Indust. Prods., Inc. v. Solid State Sys. Corp.*, 755 F.2d 158, 163-164 (Fed. Cir. 1985)); Tr. 14; *see also Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (finding that the Board was not required to set forth express findings as to level of skill in art and quoting *Litton Industrial Products, Inc.*, 755 F.2d at 163). Patent Owner had its first opportunity to submit testimony regarding the skill level of a person of ordinary skill in the relevant art, namely Dr. Checkel’s declaration (Ex. 2018), in its response to the petition. *See* 37 C.F.R. § 42.107(c) (“The preliminary response shall not present new testimony evidence beyond that already of record, except as authorized by the Board.”).

Patent Owner asserts that “[t]he educational experience of the ordinary artisan in this field at the time would range from a high school diploma to one or more years of vocational, technical, or college training in industrial arts, mechanical engineering, automotive technology, or a related field.” PO Resp. 29.

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Regarding professional experience, Dr. Checkel contends that, at the time of the filing of the '808 patent, because not many technicians

focused solely on evaluating and developing diagnostic systems for the EVAP systems, the person of ordinary skill would have had experience developing diagnostic and repair tools for engine systems in general. . . . The professional experience possessed by the ordinary artisan would thus have included experience in engine diagnosis and repair, including at least some experience with EVAP systems and other emission systems. . . . The ordinary artisan would also have had a limited understanding of the chemistry of combustion and the characteristics of hydrocarbon based fuel.

According to Dr. Checkel, for the person of ordinary skill who held a high school diploma, the amount of relevant professional experience would be seven to ten years, while those with more educational experience would require correspondingly less years of professional experience.

Id. (citations omitted).

Petitioner challenges Dr. Checkel's definition of a person of ordinary skill in the relevant art. Petitioner argues that Dr. Checkel is not a person of ordinary skill in the relevant art (Pet. Reply, 7-8), and that Dr. Checkel's definition of a person of ordinary skill in the art should be excluded as evidence due to Dr. Checkel's lack of qualifications as an expert witness on this topic. Pet. Mot. Excl. 4.³ In particular, Petitioner argues that Dr. Checkel was educated and has lived and worked in *Canada* for most of his life, and does not know what a person of ordinary skill in the relevant art in the *United States* would know of smoke

³ Although we address Petitioner's motion to exclude in its entirety below, because Petitioner's arguments regarding Dr. Checkel's testimony concerning the definition of a person of ordinary skill in the art are relevant to our application of the *Graham* factors, we discuss those arguments here.

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machines, such as those described in Gilliam, or of U.S. activities with respect to evaporative emission control (“EVAP”) systems or testing. *Id.* at 4-6; *see* Pet. Reply Mot. Excl. 1. Thus, Petitioner contends that a person of ordinary skill in the relevant art must have experience, education, and knowledge specific to the United States. *See* Tr. 28:4-13.

Petitioner, however, does not cite precedent to support its position, and, during the oral hearing, Petitioner acknowledged that it was unaware of any supporting case law. *Id.* at 28:14-17. Moreover, we note that Dr. Checkel has “worked on automotive research projects with all of the ‘Big Three’ North American manufacturers as well as various suppliers to the industry.” Ex. 2018 ¶ 3. We are not persuaded on this record and with respect to this art that Petitioner has shown that a relevant distinction may be drawn between persons of ordinary skill in the United States and in Canada.

Although Petitioner argues against Patent Owner’s expert’s definition of a person of ordinary skill in the art, Petitioner provides no persuasive alternative. During the oral hearing, Petitioner was asked to identify where in the record there was support for a person of ordinary skill in the art combining the applied prior art in the manner proposed in the petition, to which Petitioner responded:

MR. NEWBOLES: In the record? Two, the prior art itself, as this Board held and the Board instituting the IPR, is that if the prior art reflects a level of skill in the art, then that art can be -- the level of skill can be readily ascertained.

Tr. 14; *see* Dec. 17-18. Nevertheless, we find Petitioner’s argument, that the definition of a person of ordinary skill in the art must be specific to the United States, inconsistent with Petitioner’s argument that the level of ordinary skill in the

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art can be ascertained from prior art from the United States, Great Britain, and Canada.⁴

Hence, we adopt Dr. Checkel’s definition of a person of ordinary skill in the relevant art for purposes of evaluating the teachings of the prior art references relied upon by Petitioner. Based on Dr. Checkel’s unrebutted testimony, a person of ordinary skill in the art relevant to motor vehicle engine diagnosis and repair, including EVAP system leak detection methods, at the time of the filing of the ’808 patent, possessed a range of educational and professional experience, with more education demanding less professional experience. PO Resp. 28-29 (citing Ex. 2018 ¶¶ 111–113).

2. *The Scope and Content of the Prior Art and Any Differences Between the Claimed Subject Matter and the Prior Art*
a. *Gilliam and Stoye*

Petitioner argues that independent claim 9 and dependent claim 10 are unpatentable under 35 U.S.C. § 103(a) over Gilliam and Stoye. Pet. 34-46. Specifically, Petitioner argues that Gilliam teaches all of the limitations of claims 9 and 10 of the ’808 patent, “except [that Gilliam uses] air instead of inert gas to generate smoke and carry that smoke to the systems being tested.” Pet. 21. In particular, Petitioner argues that Gilliam teaches the use of such smoke to test for leaks in various vacuum systems of an internal combustion engine, including an

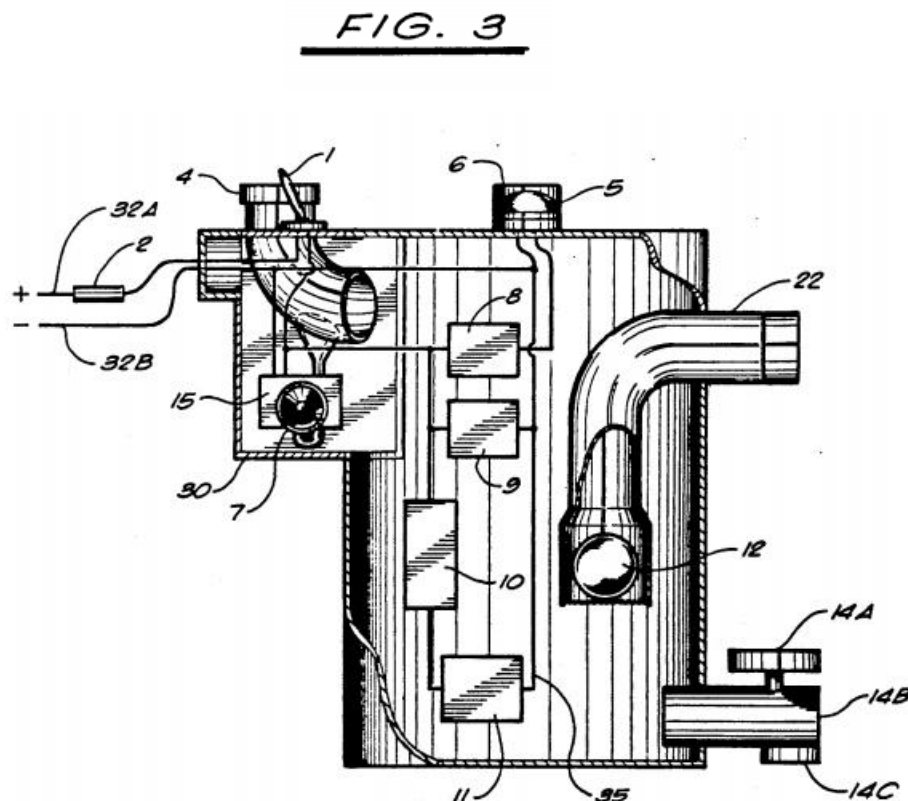
⁴ Gilliam is a patent issued by the U.S. Patent and Trademark Office to a U.S. resident, and Pauley and Stoye are patents issued by the British Patent Office to British companies. We further note that Corona Integrated Technologies, Inc., the company that offered the smoke generators described in the 1999 Website reference, is located in Canada. Ex. 1013, 1 (identifying link to www.smokemachines.com).

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EVAP system. Ex. 1005, Abstract (“By visibly observing smoke exiting from any of the hoses, flanges and gaskets contained within the vacuum system [in an internal combustion engine], leaks therein may be readily located.”); *see also* Tr. 25:19-27:3 (citing Ex. 2016, 36). Thus, Petitioner argues that, “but for the use of an inert gas, the *Gilliam* Patent discloses the claimed invention.” Pet. 24. Petitioner then relies on *Stoyle* as disclosing the use of an inert gas to generate smoke as a substitute for the air used in *Gilliam*’s smoke-producing chamber. *Id.* at 28.

i. Teachings of Gilliam

Figure 3 of *Gilliam* is reproduced below.



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Figure 3 depicts a front, cut-away view of a smoke generating apparatus for use in detecting leaks. Ex. 1005, col. 4, l. 67-col. 5, l. 4. Referring to Figure 3, Gilliam describes smoke generating assembly 35 that comprises air pump 15, which introduces pressurized air into chamber 30. *Id.* at col. 6, ll. 20-41. A smoke-producing fluid is introduced into chamber 30 via filler port 6, and air generated by pump 15 circulates the smoke-producing fluid within chamber 30. *Id.* at col. 6, ll. 22-23, 58-60. Preferably, the smoke-producing fluid is non-flammable and non-toxic. *Id.* at col. 5, ll. 67-68. When the smoke-producing fluid comes in contact with ceramic heating element 11, the smoke-producing fluid vaporizes within chamber 30. *Id.* at col. 6, ll. 34-36. Smoke generated within chamber 30 then is conveyed via conduit 22 to a particular automotive system for leak testing. *Id.* at col. 8, ll. 8-13.

Smoke from assembly 35 may be “sealably communicated” to a vacuum system in an internal combustion engine to visibly identify “leaks of any and all sizes, regardless of their location” in an internal combustion engine and “in *virtually any* closed vacuum system in the automobile.” *Id.* at col. 3, ll. 7-11, 15-19, 48-52 (emphasis added). Referring to Figure 5 (not reproduced here), assembly 35 further may comprise “spark-arrestor 3 which is disposed at the remote end of conduit 22 as an interface with the vehicles engine.” *Id.* at col. 7, ll. 51-53. “[S]park-arrestor 3 prevents sparks or even flames from entering a vehicle’s engine, thereby causing an explosion. Flames could be generated, for example, if a flammable fluid mixture was inadvertently created in chamber [30].” *Id.* at col. 7, ll. 55-59 (emphasis added). Further, although Gilliam teaches that it is preferred to use a non-flammable, non-toxic fluid, Gilliam teaches that a hydraulic

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fluid with a flash point of 425°F may be used as the smoke-producing fluid. *Id.* at col. 5, l. 68-col. 6, l. 2.

Referring again to Figure 1, Gilliam further teaches that bimetallic strip 10 may interrupt the heating step when the temperature in chamber 30 reaches approximately 250°F and preferably maintains the temperature of the smoke-producing fluid in a range of 240°F to 250°F. *Id.* at col. 7, ll. 14-20; *see also id.* at col. 7, ll. 1-10 (thermistor 8 indicates when the temperature in chamber 30 exceeds 220°F).

Petitioner argues that Gilliam cautions against the potential risk of explosion if flammable smoke, generated within chamber 30 of assembly 35, is introduced into vacuum systems of an automobile for leak-testing, such as in an EVAP system including a fuel tank. *See* Pet. 24, 45. Petitioner acknowledges, however, that Gilliam does not disclose the use of inert gas that will create an “inert environment” and “prevent ignition” within the “closed smoke-producing chamber” and within the closed EVAP system “during the testing thereof,” as claimed in claim 9 of the ’808 patent. Pet. 24-25; *see also* Ex. 1001 (Reexam. Cert. No. US 6,526,808 C2), col. 1, l. 32, col. 2, ll. 1-7, col. 2, ll. 15-19 (emphasis added). These limitations were added by amendment during the first reexamination of the ’808 patent to overcome the Examiner’s rejection of the claims over cited prior art that included Gilliam. *Id.*; Ex. 1003, 15 (May 26, 2011, Statement of Reasons for Patentability), 32-33 and 46-47 (May 10, 2011, Response to Final Office Action), 94-95 (Mar. 10, 2011, Final Office Action).

We note that Gilliam includes at least three ways to prevent combustion of a flammable, smoke producing fluid: the substantial temperature differential between

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the heated fluid and its flash point, a bimetallic temperature regulation strip, and a spark arrestor. Ex. 1005, col. 5, l. 65-col. 6, l. 2, col. 7, ll. 1-25, 50-59. Gilliam does not teach or suggest the use of inert gas to create an inert environment in the closed smoke-producing chamber, as a combustion-prevention alternative. Pet. 24.

ii. Teachings of Stoye

Petitioner argues that, because Stoye teaches the use of an inert gas to generate smoke and reduce the risk of explosion, a person skilled in the art would have had reason to substitute the inert gas of Stoye for the air used in Gilliam's closed smoke-producing chamber to achieve the invention of claim 9 of the '808 patent. Pet. 28, 37-46. Figure 3 of Stoye is reproduced below.

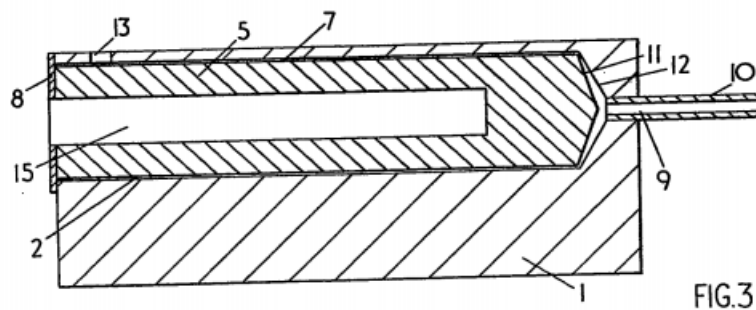


Figure 3 depicts a longitudinal sectional view of the apparatus for heating mixtures of carbon dioxide and oil to produce a smoke or mist. Ex. 1008, 2:66-67. Stoye describes that a smoke or mist for testing ventilation systems, or for theatrical effects, may be generated by heating a mixture of oil and carbon dioxide. *Id.* at 1:11-17. Referring to Figure 3, the mixture of oil and carbon dioxide is forced from fluid inlet means 14 (not shown) into very narrow space 7 between plug 11 and bore 12, which eventually joins with outlet means 10. *Id.* at 2:86-93, 2:99-108; *see* Pet. 38, 40, 42. Stoye describes that the mixture of oil and carbon

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dioxide “emerges [from outlet means 10] in the form of a mist or smoke.” Ex. 1008, 2:107-8.

Patent Owner argues that Stoye teaches an apparatus that generates smoke only after the mixture of heated oil and carbon dioxide gas leaves, i.e., “emerges” from, the apparatus and, therefore, does not disclose “producing smoke in an inert environment within a closed smoke-producing chamber.” Prelim. Resp. 19, 22. In particular, Stoye describes that the mixture “emerges in the form of a mist or smoke.” *Id.* at 22 (citing Ex. 1008, 2:104-109).

iii. Combination of Gilliam and Stoye

For the reasons discussed below, we agree with Patent Owner, and we are not persuaded by Petitioner’s evidence or Petitioner’s reasoning that a person of ordinary skill would have had reason to substitute Stoye’s use of inert gas, forced into the narrow compressed space between a bore and a plug, in place of the air used in Gilliam’s temperature-regulated, spark arrestor-governed system to generate smoke in a closed smoke-producing chamber. *See* Pet. 41-42. It is not sufficient for prior art references to teach or suggest the recited limitations of a claim. There must be some reasoning supported by rational underpinnings to combine the references to achieve the invention recited in the challenged claims. As the U.S. Supreme Court explained, “[a] factfinder should be aware, of course, of the distortion caused by hindsight bias and must be cautious of arguments reliant upon *ex post* reasoning.” *KSR*, 550 U.S. at 421 (citing *Graham*, 383 U.S. at 36 (warning against a “temptation to read into the prior art the teachings of the invention in issue” and instructing courts to “guard against slipping into use of hindsight”).

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Petitioner argues that a person of ordinary skill in the relevant art would have reason to “substitute” the inert gas described in Stoye for the air described in Gilliam. Tr. 15:4-10, 15:13-22, 17:10-18, 21:20-24, 23:14-23, 24:20-24, 27:15-21, 29:20-24, 82:17-22. Petitioner identifies, as the reason to combine the teachings of Gilliam and Stoye, the disclosure of the safety advantages of Stoye’s mist or smoke produced with an inert gas, i.e., carbon dioxide gas, and Gilliam’s cautions about the dangers of the introduction of flammable smoke into tested systems. Pet. 36-37; Pet. Reply 9-10; Tr. 84:9-25. Specifically, Petitioner argues that:

if you have a threat of sparks and explosions, and using an inert gas eliminates that completely, as taught by the prior art, where you can make a smoke that reduces any tendency to ignition, then you can do that and you do have an inadvertent risk of fire, you have a zero chance of a fire.

Tr. 84:12-17. Thus, according to Petitioner, a person skilled in the relevant art would have reason to combine the teachings of Gilliam and Stoye, specifically by *substituting* the air used in Gilliam with the inert gas used in Stoye, to achieve the invention recited in independent claim 9.

In support of this reasoning, Petitioner asserts that the dangers associated with leak testing in an explosive environment and of generating smoke using flammable fluid were known at the time of the filing of the ’808 patent. Ex. 1005, col. 7, ll. 57-59; *see* Pet. 22, 28, 37-43. Petitioner also asserts that the teachings of Gilliam and Stoye were known in the same field of endeavor, e.g., the generation of smoke for leak testing (Ex. 1005, col. 2, l. 66-67; Ex. 1008, 1:15-17), at the time of the filing of the ’808 patent.

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Petitioner's arguments, however, are not supported with declaration testimony, and the inferences Petitioner attempts to draw from statements made in Gilliam and Stoye (*see* Pet. Reply 9-10) are rebutted effectively by Patent Owner's expert, Dr. Checkel. *See, e.g.*, Ex. 2018 ¶¶ 135-139, 145, 147, 171-174; Ex. 1052, 167:3-24. Stoye teaches an apparatus and method for producing smoke to test ventilation systems or for atmospheric theatrical effects, which typically consumes two pints of oil and two and one-half pounds of carbon dioxide every twenty minutes. Ex. 1008, 2:121-130. As Dr. Checkel explains, "under these conditions, a typical smoke generation would require hundreds of pounds of ambient air every 20 minutes." PO Resp. 42 (citing Ex. 2018 ¶ 141). Further, Stoye describes that its apparatus and method require *less* carbon dioxide than other available smoke generating systems. Ex. 1008, 3:14-22. Thus, Dr. Checkel concludes that Stoye's apparatus and method requires a *mixture* of inert gas and a significant amount of air in order to operate. Ex. 1018 ¶¶ 139-146. Petitioner does not contend that Stoye teaches the use of inert gas *alone*, nor does Petitioner otherwise rebut Dr. Checkel's conclusion with persuasive evidence.

In addition, Stoye does not teach generating smoke in an inert environment within a closed smoke-producing chamber, as recited in claim 9 of the '808 patent. PO Resp. 25; Ex. 2018 ¶ 94. Instead, Stoye teaches combining a smoke producing fluid and a mixture of air and inert gas, e.g., CO₂, in a very narrow compressed space between plug 11 and bore 12, as depicted in Figure 3. Smoke is not generated, however, until the mixture "emerges" from outlet means 10. Ex. 1008, 2:104-108. Thus, the generation of smoke using inert gas in Stoye is different in type and location from that recited in claim 9 of the '808 patent. *See* Ex. 2018

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¶¶ 94-95. Specifically, Stoye teaches that the smoke is produced when a heated mixture of oil and CO₂ is combined with air and that smoke is not produced within a closed smoke producing chamber. *Id.*

Although Stoye teaches the use of mist or smoke to test ventilation systems (Ex. 1008, 1:11-17), Stoye also does not disclose or suggest creating an inert environment during leak-testing of a closed vacuum system in a motor vehicle, such as an EVAP system including a fuel tank. The evidence of record also indicates that EVAP systems are treated separately even from other engine vacuum systems, because of the known risk of their potentially explosive environment. Ex. 2018 ¶¶ 71-75; Ex. 2015, 33-34; Ex. 2016, 34-36.

Based on the present record, including Dr. Checkel's unrebutted testimony, we are not persuaded that Petitioner has provided sufficient evidence to show that a person of ordinary skill in the art would have had reason to *substitute* the air used in Gilliam with inert gas *alone* from the mixture disclosed in Stoye to achieve the invention recited in claim 9. Specifically, Dr. Checkel opines that:

136. The Stoye apparatus heater relies on a high pressure process to heat oil to a temperature so as to enable flash evaporation and thus generate a large output of smoke. The Stoye apparatus heats and forces a foam of oil and inert carbon dioxide gas under pressure through narrow annular passages in a heated metal assembly. This construction allows the oil to be *pressurized* and superheated above its atmospheric boiling temperature without significant degradation because of the uniform heating temperature and lack of oxygen. At the end of Stoye's heater tube, *the superheated liquid oil is released to ambient conditions to form a mist.*

137. A smoke generator relying on high pressure and flash evaporation to generate large volumes of smoke would be inappropriate and dangerous to use with the closed volume of an

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EVAP system, which is typically restricted to pressure of 1 psi (7kPa) or less. Even if the smoke generator had some modifications, the use of high pressure in generating the smoke and the production of large volumes of smoke at a rapid rate would risk damaging EVAP and fuel system components, possibly to the point of rupture. *A person of skill would not consider Stoye to be an analogous reference to add features missing from Gilliam.*

Ex. 2018 ¶¶ 136-137 (emphasis added; citations omitted). Dr. Checkel's analysis of the differences between Stoye and claim 9 of the '808 patent is specific, well-supported, and persuasive. Therefore, we do not find sufficient evidence to support Petitioner's argument for relying on Stoye's ventilation testing apparatus, in combination with Gilliam's vacuum system leak-testing apparatus, to make the asserted substitution.

We determine that the evidence of record is not sufficient to conclude that Gilliam and Stoye provide a reason for one skilled in the relevant art to create an inert environment within a closed smoke-producing chamber and, subsequently, within a closed EVAP system during leak testing. In view of the differences between Stoye's and Gilliam's apparatus, as detailed by Dr. Checkel, we are persuaded that a person of ordinary skill in the relevant art would not have reason to choose only the inert gas from Stoye's air/inert gas mixture and substitute inert gas alone for Gilliam's use of air to achieve the invention recited in claim 9.

Claim 10 recites that the method of claim 9 comprises "the additional step of regulating the pressure at which the smoke is carried by said non-combustible gas from said closed smoke producing chamber to the closed system undergoing testing." Because we are not persuaded that Gilliam and Stoye render independent

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claim 9 obvious, we also are not persuaded that Gilliam and Stoyle render dependent claim 10 obvious.

b. Gilliam, Pauley, and the 1999 Website

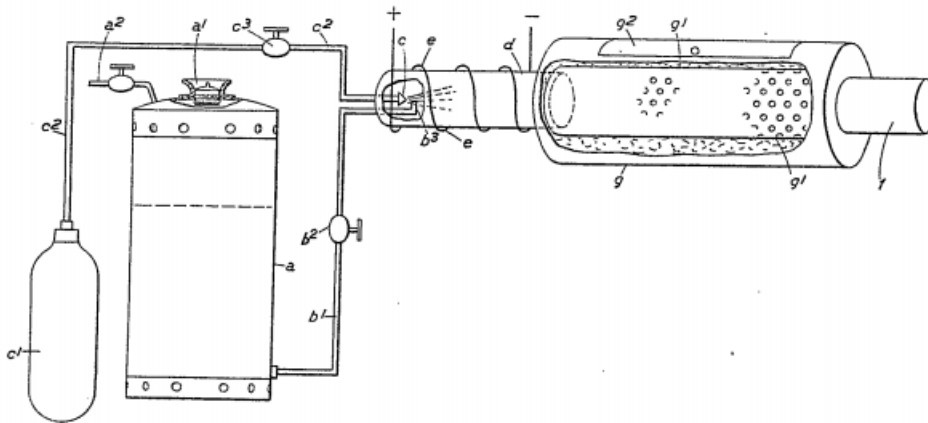
Petitioner argues that independent claim 9 and dependent claim 10 are unpatentable under 35 U.S.C. § 103(a) over Gilliam, Pauley, and the 1999 Website. Pet. 34-46. Specifically, Petitioner argues that Gilliam teaches all of the limitations of claims 9 and 10 of the '808 patent, “except [that Gilliam uses] air instead of inert gas to generate smoke and carry that smoke to the systems being tested.” *Id.* at 21. Petitioner relies on Pauley to teach the use of an inert gas to produce smoke, and the 1999 Website to teach the use of smoke to test for leaks in a motor vehicle. *Id.* at 35-46. Pauley, however, teaches the use of carbon dioxide or nitrogen gas as a medium for atomizing and propelling fog, smoke, or mist forming liquid in order to reduce, but not necessarily to prevent, any risk of ignition. *Id.* at 29-30. Further, Petitioner relies upon the teachings of the 1999 Website to support Petitioner’s reasoning for combining the teachings of Gilliam and Pauley. *Id.* at 23-24. The 1999 Website, however, suggests only that “vehicles” may be leak tested using the Corona smoke machine described therein. Ex. 1013. The 1999 Website adds little to the asserted combination of Gilliam and Pauley.

We do not repeat our discussion of the teachings of Gilliam here.

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i. Teachings of Pauley

The Figure of Pauley is reproduced below.



Pauley's Figure depicts a schematic drawing of an arrangement of apparatus adapted to create artificial fog, mist, or smoke in the atmosphere for theatrical or cinematographic applications. Ex. 1010, 1:6-14, 2:57-62. Referring to this Figure, Pauley teaches that a hydrocarbon oil from closed vessel *a* may be atomized by a jet of carbon dioxide or nitrogen from cylinder *c1*. *Id.* at 2:63-83. The oil from vessel *a* may be delivered to nozzle *b3*, and the gas from cylinder *c1* may be delivered to nozzle *c* within heated tubular member *d*. *Id.* at 2:68-77. Upon contacting the heated surface of tubular member *d*, droplets of oil, carried in the expanding gas, immediately are vaporized and form a cooled fog or mist. *Id.* at 2:96-107.

Patent Owner argues that Pauley does not teach that heated tubular member *d* is a "closed vessel." Prelim. Resp. 20 (citing Pet. 39). According to Patent Owner,

[t]he description in Pauley confirms that the back end of tubular member *d* is *open*, allowing ambient air to enter via the venturi effect.

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Ex. 1010 at 2, ll. 96–115 and 3, ll. 17–38; Ex. 2018 ¶¶ 162–163. As an initial matter, Pauley uses the same term “tube” to describe the “discharge tube *f*,” which is expressly shown in the figures and description *as open at both ends*. Ex. 1010 at 3, ll. 9–17 and Figures; *see* Ex. 2018 ¶¶ 162–163.

PO Resp. 43 (emphasis added). Specifically, Dr. Checkel opines that

the tubular member *d* is open on both ends. The atomizer used in Pauley entrains surrounding air from the open back end of tubular member *d*, and is the major component of the “carrier gas” used to make the mixture. The use of the term “tube” denotes a hollow, open-ended cylinder for conveying fluids. [Ex. 2041, 2459; Ex. 2042, 1383 (dictionary definitions of the word “tube”).] *And that is how a person of ordinary skill would understand it.* [See Ex. 2018 ¶¶ 107-114 (providing description of a person of ordinary skill in the art).]

Ex. 2018 ¶ 98 (emphasis added); *see also* Ex. 1052, 170:12-173:2, 177:8-16, 180:21-181:8 (further explaining Dr. Checkel’s interpretation of tubular member *d* as open). Petitioner disagrees, arguing that Pauley’s Figure does not depict the ends of tubular member *d* as open nor does Pauley state that the ends are open. Pet. Reply 5. Nevertheless, we are persuaded by Patent Owner’s arguments, supported by Dr. Checkel’s unrebutted testimony (Ex. 2018 ¶¶ 98, 152-156, 161-164), that Pauley teaches an open-ended tubular member *d*. Tr. 79:16-80:25.

ii. Combination of Gilliam and Pauley

Petitioner relies upon Pauley to teach that flammable fluid and a non-combustible gas, e.g., carbon dioxide or nitrogen, may be delivered to the closed smoke producing chamber of Gilliam. Pet. 38-41. Pauley explains that

[t]he use of the carbon dioxide or nitrogen gas under pressure as a medium for atomising [sic] and propelling the fog forming liquid is

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advantageous not merely because of its cooling effects upon the mixture but also because its presence greatly *reduces any tendency* to ignition of the vapour should the liquid medium be one of an inflammable nature.

Ex. 1010, 1:36-44 (emphasis added); *see* Pet. 29-31.

Unlike an inert environment in a closed chamber, the atmosphere created by the use of an inert gas and air in Pauley's open tube *reduces* the risk of ignition, but does not "*prevent ignition*" of the flammable fluid as claimed in the '808 patent. *See* Ex. 2018 ¶ 161; Ex. 1010, 2:108-116. Further, in view of the operation of Pauley's apparatus, the cited definitions of the word "tube," and the lack of any testimony rebutting Dr. Checkel's opinions, we are persuaded that tubular member *d* is open to the atmosphere. Further, we are persuaded by Dr. Checkel's testimony that Pauley does not teach or suggest creating an inert environment within a *closed* smoke-producing chamber, but rather teaches combining an inert gas with air to generate smoke in an *open* tube. PO Resp. 43-44 (citing Ex. 2018 ¶¶ 154-160, 163, 164, 168); *see also* Ex. 1052, 177:8-16, 180:21-181:8. Moreover, although Pauley teaches that the presence of these gases "reduces to a *minimum* any tendency to ignition of the vapour should the liquid employed be of an inflammable nature" (Ex. 1010, 2:113-116 (emphasis added); *see* Pet. 30-31), this does not prevent ignition of the flammable fluid, as would be the case in an *inert* environment within a closed chamber. Ex. 1052, 177:21-178:8; *see also* Tr. 54:7-55:4 (Patent Owner's counsel stated that Pauley (and Stoye) "don't teach that you can create smoke in an inert environment. Both Stoye and Pauley create smoke in air. . . . Secondly, neither of them is using the smoke to test something in an inert environment. Both of them are using the smoke to test something in air, in the

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atmosphere.”). Therefore, we are not persuaded that Gilliam in combination with Pauley teaches or suggests:

blowing a supply of non-combustible gas under pressure into the closed smoke producing chamber by way of said gas inlet thereof, for (1) *creating an inert environment within said [closed smoke producing] chamber so as to prevent ignition* and thereby avoid the possibility of an explosion when said flammable fluid is vaporized into smoke by said heating element and . . .

said supply of non-combustible gas for creating an inert environment within the closed system to which the smoke is carried, *said inert environment with the closed system preventing ignition within the closed system during the testing thereof[,]*

as recited in claim 9 (emphases added).

As we determined above regarding the teachings of Stoye, we similarly determine that the use of inert gas in Pauley is different in type and location from that recited in claim 9 of the '808 patent. Therefore, we are not persuaded that a person of ordinary skill in the art would have reason to *substitute* the air used in Gilliam with inert gas from the mixture of air and inert gas disclosed in Pauley's open-tube, theatrical effects system for generating smoke in air to achieve the invention recited in claim 9.

Claim 10 recites that the method of claim 9 comprises “the additional step of regulating the pressure at which the smoke is carried by said non-combustible gas from said closed smoke producing chamber to the closed system undergoing testing.” Because we are not persuaded that Gilliam, Pauley, and the 1999 Website render independent claim 9 obvious, we also are not persuaded that Gilliam, Pauley, and the 1999 Website render claim 10 obvious.

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3. *Patent Owner's Evidence of Secondary Considerations*

In response to the petition, Patent Owner further argues “[t]hree common objective indicia of nonobviousness . . . (a) commercial success, (b) professional approval and praise, and (c) long-felt-but-unmet need.” PO Resp. 48; *see Graham*, 383 U.S. at 17-18. In particular, Patent Owner argues that

evidence demonstrates that *products designed and prescribed for performing the methods claimed in Claims 9 and 10 of the '808 patent* were and are commercially successful, received professional approval and praise by those in the field, and satisfied a long-felt-but-unmet need for a safe and effective tool for locating leaks in a vehicle EVAP system.

PO Resp. 48 (emphasis added).

Even before considering Patent Owner's arguments regarding secondary considerations, for the reasons set forth above, we conclude that Petitioner has not demonstrated by a preponderance of the evidence that claims 9 and 10 are rendered obvious by either combination of references upon which we instituted review. Consequently, we need not reach the merits of Patent Owner's arguments regarding secondary considerations, which are intended to rebut a conclusion of obviousness. *See In re Reinhart*, 531 F.2d 1048, 1052 (CCPA 1976) (“Facts [established] by rebuttal evidence must be evaluated along with the facts on which the earlier conclusion was reached, not against the conclusion itself.”). Consistent with the U.S. Supreme Court's guidance in *Graham*, it is not necessary for us to consider Patent Owner's secondary considerations arguments further in reaching our decision in this case.

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IV. PETITIONER'S MOTION TO EXCLUDE

Petitioner seeks to exclude, in part or in their entirety, several pieces of evidence submitted by Patent Owner. Paper 56, 1-2. In particular, Petitioner seeks to exclude:

- (1) portions of the Declaration of Mr. Saffie (Ex. 2007);
- (2) portions of the Declaration of Dr. Checkel (Ex. 2018) and an SAE Technical Paper 2007-01-1235, titled *Fuel Tank and Charcoal Canister Fire Hazards During EVAP System Leak Testing*, by Kevin Frank and David Checkel, University of Alberta (April 16-19, 2007) (Ex. 2021) cited therein;
- (3) an article authored by Petitioner's president (Ex. 2045);
- (4) the Declaration of Zach Caldwell, a former employee of Petitioner (Ex. 2046); and
- (5) Exhibits 2020, 2022, and 2024-2036, referenced in Dr. Checkel's Declaration, and Exhibits 2008, 2013, 2015, and 2017, referenced in Mr. Saffie's Declaration.

Id. at 1, 2, 15. Patent Owner opposes Petitioner's motion to exclude. PO Opp. Pet. Mot. Excl. 1-2. In response, Petitioner filed a reply (Paper 61) to Patent Owner's opposition to its motion to exclude. For the reasons set forth below, we *deny* Petitioner's motion to exclude the identified portions of the Declaration of Dr. Checkel (Ex. 2018) and Exhibits 2008, 2013, 2015, 2017, 2020, 2022, and 2024-2036, and *dismiss* the Petitioner's motion with respect to the other challenged pieces of Patent Owner's evidence as moot.

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A. *Ex. 2007: The Declaration of Jim Saffie*

Petitioner moves to exclude paragraphs 7, 16, 21, 26, 28, 33, and 37 of the Declaration of Jim Saffie on the basis that the testimony contained in these paragraphs is hearsay and not supported by any personal knowledge of Mr. Saffie, whom Patent Owner did not offer as an expert. Pet. Mot. Excl. 11-12. In particular, Petitioner argues that Mr. Saffie's statements regarding the mandate from specific car manufacturers that their auto dealerships use Patent Owner's products are impermissible hearsay. *Id.* Further, Petitioner seeks to exclude Mr. Saffie's discussion in paragraphs 19, 24, 31, 36, and 42 of certain user manuals (Ex. 2009-2012 and 2014) as irrelevant. *Id.* at 12. *But see* Pet. Reply 12-13 (relying on manuals to demonstrate lack of nexus).

On this record, it is not necessary for us to assess the merits of Petitioner's motion to exclude Mr. Saffie's testimony. Mr. Saffie's testimony and the user manuals discussed therein are submitted as objective evidence (secondary considerations) of nonobviousness to rebut Petitioner's assertion that claims 9 and 10 would have been obvious over Gilliam and Stoye or over Gilliam, Pauley, and the 1999 Website. PO Opp. Pet. Mot. Excl. 10-12; PO Resp. 48-49. As discussed above, even without reaching Patent Owner's objective indicia of nonobviousness, we have determined that Petitioner fails to demonstrate, by a preponderance of the evidence, that claims 9 and 10 are unpatentable over the combinations of cited prior art.

Accordingly, Petitioner's motion to exclude portions of the Declaration of Jim Saffie (Ex. 2007) is *dismissed* as moot.

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B. Ex. 2018: Declaration of Dr. Checkel

Petitioner seeks to exclude Dr. Checkel's definition of a person of ordinary skill in the art, as set forth in paragraphs 102 and 107-114 of his declaration. Paper Pet. Mot. Excl. 4. In particular, Petitioner asserts that certain statements made by Dr. Checkel are incorrect factually and that Dr. Checkel's definitions of a person of ordinary skill in the art, as set forth in Exhibit 2018 ¶¶ 112 and 113, are inconsistent. *Id.* at 5. Patent Owner opposes this portion of the motion to exclude, arguing that Dr. Checkel's qualifications are adequate to qualify him to provide an expert opinion and that Petitioner's other arguments go to the weight accorded Dr. Checkel's testimony, rather than its admissibility. PO Opp. Pet. Mot. Excl. 2-3. In particular, we note that Dr. Checkel's testimony regarding the definitions of a person of ordinary skill in the art is not inconsistent, but, instead, merely recognizes flexibility in that definition based on varying amounts of education and experience in persons of ordinary skill in the relevant art. *Id.* at 3 ("Dr. Checkel was clear -- in his opinion, the person of ordinary skill could have *a range of educational as well as professional experience*, with more educational experience reducing the level of required professional experience. Ex. 2018 ¶¶ 111-113." (emphasis added)). We agree.

Petitioner further contends that

As a Canadian native who was educated and taught in Canada (Ex. 2019, Ex. 1052 43:9-14), who has never worked full-time in the U.S. but at most only "very part-time" on unspecified dates (Ex. 1052 44:5-45:14), no foundation is offered for Checkel's "U.S. expertise" or knowledge of U.S. activities and EVAP service personnel.

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Pet. Mot. Excl. 6. As discussed above, we are not persuaded by Petitioner's arguments that a distinction properly may be drawn between a U.S. and non-U.S. expert in the art relevant to the '808 patent, based on the facts and evidence presented by the parties here. Therefore, on this record and for the foregoing reasons, we decline to exclude paragraphs 102 and 107-114 of Dr. Checkel's declaration, identified in Petitioner's motion.

C. *Ex. 2021: Fuel Tank and Charcoal Canister Fire Hazards During EVAP System Leak Testing, by Kevin Frank and David Checkel*

Petitioner argues that this exhibit should be excluded pursuant to Federal Rules of Evidence ("FRE") 403 because the exhibit is not relevant and is prejudicial and misleading. Pet. Mot. Excl. 9-10. In particular, Petitioner argues that "Exhibit 2021 fail[s] to support the points for which it is proffered" (*id.*) and the article, as the work of a graduate student, Mr. Frank, whose research was funded by Patent Owner (*id.* at 10-11), may not be reliable. Despite this latter point, Petitioner's arguments for exclusion are focused on the substance of Exhibit 2021. *See id.* at 9-11. Patent Owner responds that, by its motion with respect to this evidence, Petitioner is merely challenging the weight to be given to this evidence. PO Opp. Pet. Mot. Excl. 12. We agree.

As noted above, a motion to exclude is not the proper vehicle to challenge the sufficiency of evidence. On this record, however, it is not necessary for us to assess the merits of Petitioner's motion to exclude Exhibit 2021. As discussed above, without considering Patent Owner's Exhibit 2021, we determine that Petitioner has not presented sufficient evidence to demonstrate, by a preponderance of the evidence, that claims 9 and 10 are unpatentable over the combinations of

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cited prior art. Accordingly, Petitioner's motion to exclude Exhibit 2021 is *dismissed* as moot.

D. *Ex. 2045: Article Authored by Petitioner's President and Ex. 2046: Declaration of Zach Caldwell*

Petitioner argues that Patent Owner offers Exhibits 2045 and 2046 in support of its argument that the petition should be denied based on the equitable defense of assignor estoppel. Pet. Mot. Excl. 13-14. Because we have determined that assignor estoppel is not available as a defense to the institution of an *inter partes* review (Dec. 12-13), Petitioner argues that Patent Owner submitted these exhibits "in bad faith and in direct violation of the Board's Orders." *Id.* at 14. Initially, we note that we did not order Patent Owner *not* to submit evidence relating to the equitable defense of assignor estoppel. As Patent Owner correctly notes, we did not prohibit Patent Owner from arguing during the oral hearing that "Petitioner is barred by the doctrine of assignor estoppel from challenging Claims 9 and 10 as unpatentable." PO Req. Oral Arg. 1. We merely noted that, "[w]hile the Board does not *require* oral argument on the issue of assignor estoppel in view of its earlier decisions in this proceeding (*see, e.g.*, Dec. on Req. Reh'g 3), the parties are free to address the issue at oral argument." Order Trial Hearing 2 (emphasis added); *see* PO Opp. Pet. Mot. Excl. 12.

Therefore, because our determination that assignor estoppel is not available as a defense to the institution of an *inter partes* review is not premised on the content of Exhibits 2045 or 2046, Petitioner's motion to exclude Exhibits 2045 and 2046 is *dismissed* as moot.

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E. Exhibits 2020, 2022, and 2024-2036: Referenced in Dr. Checkel's Declaration, and Exhibits 2008, 2013, 2015, and 2017: Referenced in Mr. Saffie's Declaration

Petitioner seeks to exclude Exhibits 2020, 2022, and 2024-2036, referenced in Dr. Checkel's Declaration, and Exhibits 2008, 2013, 2015, and 2017, referenced in Mr. Saffie's Declaration, as allegedly irrelevant under FRE 403 and hearsay under FRE 801 and 802. Pet. Mot. Excl. 15. Petitioner, however, fails to identify any allegedly improper portions of any of these exhibits with any particularity. *Id.*; *see* Pet. Reply Mot. Excl. 5 ("For the reasons set forth in [Petitioner's] motion, the remainder of [Patent Owner's] evidence should be excluded."). Such a general objection to these exhibits does not provide us with the information necessary to assess Petitioner's reasons for seeking exclusion of these exhibits. Therefore, on this record, Petitioner's motion to exclude Exhibits 2008, 2013, 2015, 2017, 2020, 2022, and 2024-2036 is *denied*.

V. CONCLUSION

Petitioner has not presented sufficient evidence to show by a preponderance of the evidence that: (1) claims 9 and 10 of the '808 patent are unpatentable under 35 U.S.C. § 103(a) as obvious over Gilliam and Stoye; and (2) claims 9 and 10 of the '808 patent are unpatentable under 35 U.S.C. § 103(a) as obvious over Gilliam, Pauley, and the 1999 Website.

VI. ORDER

In consideration of the foregoing, it is

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ORDERED that claims 9 and 10 of the '808 patent have *not* been shown to be unpatentable; and

FURTHER ORDERED that Petitioner's motion to exclude is *denied-in-part*, to the extent that Petitioner seeks exclusion of evidence, as set forth in Section IV.B. and IV.E. above, and otherwise *dismissed* as moot, as set forth in Sections IV.A., VI.C., and IV.D. above.

This is a final decision. Parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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