Paper No. __
Filed: July 18, 2018

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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R.J. REYNOLDS VAPOR COMPANY,
Petitioner.

v.

FONTEM HOLDINGS 1 B.V.,
Patent Owner.

_____

Case IPR2018-00634
Patent 9,456,632

_____

PATENT OWNER PRELIMINARY RESPONSE TO PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 9,456,632

TABLE OF CONTENTS

Page

TABLE OF CONTENTS
(continued)

Page

TABLE OF AUTHORITIES

CASES

STATUTES

OTHER AUTHORITIES

LIST OF EXHIBITS

Petitioner's Exhibits	
Exhibit	**Description**
Ex. 1001	U.S. Pat. No. 9,456,632 ("632 patent")
Ex. 1002	Expert Declaration of Robert Sturges, Ph.D.
Ex. 1003	U.S. Pat. No. 4,947,874 ("Brooks")
Ex. 1004	U.S. Pat. No. 2,057,353 ("Whittemore")
Ex. 1005	U.S. Pat. No. 5,894,841 ("Voges")
Ex. 1006	Reserved
Ex. 1007	Reserved
Ex. 1008	U.S. Pat. No. 6,155,268 to Takeuchi
Ex. 1009	Chinese Pat. No. 2719043Y ("Hon 043") (including certified translation)
Ex. 1010	U.S. Pat. No. 5,743,251 ("Howell")
Ex. 1011	U.S. Pat. No. 2,461,664 ("Smith")
Ex. 1012	U.S. Pat. No. 3,234,357 ("Seuthe")
Ex. 1013	*Contact*, Merriam-Webster's Collegiate Dictionary, Merriam- Webster, Inc. (11th ed. 2003)
Ex. 1014	U.S. Pat. Pub. No. 2004/0234916 ("Hale")
Ex. 1015	U.S. Pat. No. 4,922,901 ("Brooks 901")
Ex. 1016	U.S. Pat. No. 1,084,304 ("Vaughn")

Petitioner's Exhibits	
Exhibit	**Description**
Ex. 1017	Institution Decision dated Feb. 7, 2017 (Paper 9), *R.J. Reynolds Vapor Co. v. Fontem Holdings 1 B.V.*, IPR2016-01532 (P.T.A.B., petition filed Aug. 5, 2016)
Ex. 1018	Institution Decision dated Mar. 6, 2017 (Paper 9), *R.J. Reynolds Vapor Co. v. Fontem Holdings 1 B.V.*, IPR2016-01691 (P.T.A.B., petition filed Aug. 30, 2016)
Ex. 1019	U.S. Pat. No. 3,292,635 ("Kolodny")
Ex. 1020	U.S. Pat. No. 3,685,521 ("Dock")
Ex. 1021	Reserved
Ex. 1022	Institution Decision dated Feb. 5, 2018 (Paper 9), *Cascades Canada ULC v. SCA Hygiene Prods AB*, IPR2017-01921 (P.T.A.B., petition filed Aug. 7, 2017)
Ex. 1023	Institution Decision dated Jan. 19, 2018 (Paper 9), *Donghee America, Inc. v. Plastic Omnium Advanced Innovation and Research*, IPR2017-01654 (P.T.A.B., petition filed June 21, 2017)
Ex. 1024	Institution Decision dated May 18, 2017 (Paper 9), *Limelight Networks, Inc. v. Mass. Inst. of Tech.*, IPR2017-00249 (P.T.A.B., petition filed Nov. 11, 2016)
Ex. 1025	Institution Decision dated July 15, 2015 (Paper 10), *Microsoft Corp. v. Parallel Networks Licensing, LLC*, IPR2015-00483 (P.T.A.B., petition filed Dec. 23, 2014)
Ex. 1026	Institution Decision dated Mar. 13, 2013 (Paper 19), *Micron Tech., Inc. v. Bd. of Trs. of the Univ. of Ill.*, IPR2013-00005 (P.T.A.B., petition filed Oct. 2, 2012)

Petitioner's Exhibits	
Exhibit	**Description**
Ex. 1027	Institution Decision dated Jan. 24, 2013 (Paper 18), *Macauto U.S.A. v. BOS GMBH & KG*, IPR2012-00004 (P.T.A.B., petition filed Sept. 16, 2012)
Ex. 1028	Institution Decision dated Feb. 6, 2018 (Paper 8), *Samsung Elecs. Am. v. Uniloc*, IPR2017-01801 (P.T.A.B., petition filed July 20, 2017)
Ex. 1029	Institution Decision dated Jan. 4, 2017 (Paper 11), *R.J. Reynolds Vapor Company v. Fontem Holdings 1 B.V.*, IPR2016-01270 (P.T.A.B., petition filed July 2, 2016)
Ex. 1030	U.S. Pat. Pub. No. 2005/0016550 ("Katase")
Ex. 1031	Reserved
Ex. 1032	Reserved
Ex. 1033	U.S. Pat. No. 4,941,486 ("Dube")
Ex. 1034	U.S. Pat. No. 7,337,782 ("Thompson")
Ex. 1035	Declaration of Kyle E. Yarberry
Ex. 1036	WO00/28843 ("Pienemann")
Ex. 1037	Certified Translation of WO00/28843

Patent Owner's Exhibits	
Exhibit	**Description**
Ex. 2001	Declaration of Richard Meyst
Ex. 2002	*NJOY, Inc.; et al. v. Fontem Holdings 1 B.V.*, IPR2014-01300, Paper 6, Patent Owner's Preliminary Response (P.T.A.B. Nov. 20, 2014)

Patent Owner's Exhibits	
Exhibit	**Description**
Ex. 2003	*Logic Technology Development, LLC v. Fontem Holdings 1 B.V.,* IPR2015-00098, Paper 7, Patent Owner's Preliminary Response (P.T.A.B. Feb. 18, 2015)
Ex. 2004	*Logic Technology Development, LLC v. Fontem Holdings 1 B.V.,* IPR2015-00098, Paper 8, Decision Denying Institution of *Inter Partes* Review (P.T.A.B. May 11, 2015)
Ex. 2005	*VMR Products LLC v. Fontem Holdings 1 B.V.,* IPR2015-00859, Paper 2, Petition for *Inter Partes* Review of U.S. Patent No. 8,365,742 (P.T.A.B. Mar. 10, 2015)
Ex. 2006	*VMR Products LLC v. Fontem Holdings 1 B.V.,* IPR2015-00859, Paper 5, Patent Owner's Preliminary Response (P.T.A.B. Jun. 20, 2015)
Ex. 2007	*VMR Products LLC v. Fontem Holdings 1 B.V.,* IPR2015-00859, Paper 9, Decision Denying Institution of *Inter Partes* Review (P.T.A.B. Sep. 16, 2015)
Ex. 2008	*JT International S.A. v. Fontem Holdings 1 B.V.*, IPR2015-01513, Paper 8, Patent Owner's Preliminary Response (P.T.A.B. Oct. 20, 2015)
Ex. 2009	*JT International S.A. v. Fontem Holdings 1 B.V.*, IPR2015-01587, Paper 1, Petition for *Inter Partes* Review of U.S. Patent No. 8,365,742 (P.T.A.B. Jul. 14, 2015)
Ex. 2010	*JT International S.A. v. Fontem Holdings 1 B.V.*, IPR2015-01587, Paper 6, Patent Owner's Preliminary Response (P.T.A.B. Nov. 2, 2015)
Ex. 2011	*JT International S.A. v. Fontem Holdings 1 B.V.*, IPR2015-01587, Paper 12, Order Dismissing Petitions (P.T.A.B. Dec. 14, 2015)
Ex. 2012	*R.J. Reynolds Vapor Company v. Fontem Holdings 1 B.V.,* IPR2016-01268, Paper 2, Petition for *Inter Partes* Review of U.S. Patent No. 8,365,742 (P.T.A.B. Jul. 2, 2016)
Ex. 2013	*R.J. Reynolds Vapor Company v. Fontem Holdings 1 B.V.,* IPR2016-01268, Paper 8, Patent Owner's Preliminary Response (P.T.A.B. Oct. 7, 2016)

Patent Owner's Exhibits	
Exhibit	**Description**
Ex. 2014	*R.J. Reynolds Vapor Company v. Fontem Holdings 1 B.V.*, IPR2016-01268, Paper 10, Decision Institution of *Inter Partes* Review (P.T.A.B. Jan. 4, 2017)
Ex. 2015	*R.J. Reynolds Vapor Company v. Fontem Holdings 1 B.V.*, IPR2016-01270, Paper 2, Petition for *Inter Partes* Review of U.S. Patent No. 8,893,726 (P.T.A.B. Jul. 2, 2016)
Ex. 2016	*R.J. Reynolds Vapor Company v. Fontem Holdings 1 B.V.*, IPR2016-01270, Ex. 1009, Declaration of Dr. Robert H. Sturges (P.T.A.B. Jul. 2, 2016)
Ex. 2017	*R.J. Reynolds Vapor Company v. Fontem Holdings 1 B.V.*, IPR2016-01270, Paper 9, Patent Owner's Preliminary Response (P.T.A.B. Oct. 7. 2016)
Ex. 2018	*R.J. Reynolds Vapor Company v. Fontem Holdings 1 B.V.*, IPR2016-01270, Paper 12, Petitioner's Request for Rehearing (P.T.A.B. Feb. 2, 2017)
Ex. 2019	*R.J. Reynolds Vapor Company v. Fontem Holdings 1 B.V.*, IPR2016-01270, Paper 13, Decision Denying Petitioner's Request for Rehearing, (P.T.A.B. Mar. 10, 2017)
Ex. 2020	*Nu Mark LLC v. Fontem Holdings 1 B.V.*, IPR2016-01297, Paper 8, Patent Owner's Preliminary Response (P.T.A.B. Oct. 6, 2016)
Ex. 2021	*Nu Mark LLC v. Fontem Holdings 1 B.V.*, IPR2016-01303, Paper 1, Petition for *Inter Partes* Review of U.S. Patent No. 8,365,742 (P.T.A.B. Jun. 28, 2016)
Ex. 2022	*Nu Mark LLC v. Fontem Holdings 1 B.V.*, IPR2016-01303, Paper 7, Patent Owner's Preliminary Response (P.T.A.B. Oct. 7, 2016)
Ex. 2023	*Nu Mark LLC v. Fontem Holdings 1 B.V.*, IPR2016-01303, Paper 12, Termination Dismissing the Petitions (P.T.A.B. Jan. 4, 2017)
Ex. 2024	*Nu Mark LLC v. Fontem Holdings 1 B.V.*, IPR2016-01307, Paper 9, Patent Owner's Preliminary Response (P.T.A.B. Sep. 30, 2016)

Patent Owner's Exhibits	
Exhibit	**Description**
Ex. 2025	*Nu Mark LLC v. Fontem Holdings 1 B.V.*, IPR2016-01307, Paper 12, Decision - Denial of Institution of *Inter Partes* Review (P.T.A.B. Dec. 23, 2016)
Ex. 2026	*Nu Mark LLC v. Fontem Holdings 1 B.V.*, IPR2016-01309, Paper 8, Patent Owner's Preliminary Response (P.T.A.B. Sep. 30, 2016)
Ex. 2027	*Nu Mark LLC v. Fontem Holdings 1 B.V.*, IPR2016-01309, Paper 11, Decision Denying Institution of *Inter Partes* Review (P.T.A.B. Dec. 15, 2016
Ex. 2028	*R.J. Reynolds Vapor Company v. Fontem Holdings 1 B.V.*, IPR2016-01527, Paper 1, Petition for *Inter Partes* Review of U.S. Patent No. 8,490,628 (P.T.A.B. Aug. 3, 2016)
Ex. 2029	*R.J. Reynolds Vapor Company v. Fontem Holdings 1 B.V.*, IPR2016-01527, Paper 9, Patent Owner's Preliminary Response (P.T.A.B. Nov. 16, 2016)
Ex. 2030	*R.J. Reynolds Vapor Company v. Fontem Holdings 1 B.V.*, IPR2016-01527, Paper 10, Decision Denying *Inter Partes* Review (P.T.A.B. Jan. 30, 2017)
Ex. 2031	*R.J. Reynolds Vapor Company v. Fontem Holdings 1 B.V.*, IPR2016-01532, Paper 1, Petition for *Inter Partes* Review of U.S. Patent No. 8,365,742 (P.T.A.B. Aug. 5, 2016)
Ex. 2032	*R.J. Reynolds Vapor Company v. Fontem Holdings 1 B.V.*, IPR2016-01532, Paper 9, Decision Denying Institution of *Inter Partes* Review (P.T.A.B. Feb. 7, 2017)
Ex. 2033	*R.J. Reynolds Vapor Company v. Fontem Holdings 1 B.V.*, IPR2016-01691, Paper 2, Petition for *Inter Partes* Review of U.S. Patent No. 9,326,548 (P.T.A.B. Aug. 30, 2016)
Ex. 2034	*R.J. Reynolds Vapor Company v. Fontem Holdings 1 B.V.*, IPR2016-01691, Paper 9, Decision Denying *Inter Partes* Review (P.T.A.B. Mar. 6, 2017)

Patent Owner's Exhibits	
Exhibit	**Description**
Ex. 2035	*R.J. Reynolds Vapor Company v. Fontem Holdings 1 B.V.*, IPR2016-01692, Paper 2, Petition for *Inter Partes* Review of U.S. Patent No. 9,326,548 (P.T.A.B. Aug. 30, 2016)
Ex. 2036	*Becton-Dickinson v. Braun*, IPR2017-01586, Paper 8, Decision - Institution of *Inter Partes* Review (P.T.A.B. Dec. 15, 2017)
Ex. 2037	*R.J. Reynolds Vapor Company v. Fontem Holdings 1 B.V.*, IPR2016-01692, Paper 7, Patent Owner's Preliminary Response (P.T.A.B. Dec. 9, 2016)
Ex. 2038	*R.J. Reynolds Vapor Company v. Fontem Holdings 1 B.V.*, IPR2016-01692, Paper 8, Decision Institution of *Inter Partes* Review (P.T.A.B. Mar. 7, 2017)
Ex. 2039	*Nu Mark LLC v. Fontem Holdings 1 B.V.*, IPR2017-00204, Paper 1, Petition for *Inter Partes* Review of U.S. Patent No. 9,326,548 (P.T.A.B. Nov. 4, 2016)
Ex. 2040	*Nu Mark LLC v. Fontem Holdings 1 B.V.*, IPR2017-00204, Paper 11, Termination Dismissing the Petitions (P.T.A.B. Jan. 4, 2017)
Ex. 2041	*Nu Mark LLC v. Fontem Holdings 1 B.V.*, IPR2017-00205, Paper 10, Termination Dismissing the Petitions (P.T.A.B. Jan. 4, 2017)
Ex. 2042	*Nu Mark LLC v. Fontem Holdings 1 B.V.*, IPR2017-00257, Paper 10, Termination Dismissing the Petitions (P.T.A.B. Jan. 4, 2017)
Ex. 2043	*Nu Mark LLC v. Fontem Holdings 1 B.V.*, IPR2017-00303, Paper 9, Termination Dismissing the Petitions (P.T.A.B. Jan. 4, 2017)
Ex. 2044	*Nu Mark LLC v. Fontem Holdings 1 B.V.*, IPR2017-00342, Paper 9, Termination Dismissing the Petitions (P.T.A.B. Jan. 4, 2017)
Ex. 2045	*R.J. Reynolds Vapor Co. v. Fontem Holdings 1 B.V.*, IPR2017-01118, Paper 2, Petition for *Inter Partes* Review of U.S. Patent No. 8,490,628 (P.T.A.B. Apr. 3, 2017)
Ex. 2046	*R.J. Reynolds Vapor Co. v. Fontem Holdings 1 B.V.*, IPR2017-01118, Paper 7, Patent Owner's Preliminary Response (P.T.A.B. Jul. 25, 2017)

Patent Owner's Exhibits	
Exhibit	**Description**
Ex. 2047	*R.J. Reynolds Vapor Co. v. Fontem Holdings 1 B.V.*, IPR2017-01118 and IPR2017-01119, Paper 8, Decision Denying *Inter Partes* Review (P.T.A.B. Oct. 4, 2017)
Ex. 2048	*R.J. Reynolds Vapor Co. v. Fontem Holdings 1 B.V.*, IPR2017-01120, Paper 2, Petition for *Inter Partes* Review of U.S. Patent No. 8,899,239 (P.T.A.B. Apr. 4, 2017)
Ex. 2049	*R.J. Reynolds Vapor Co. v. Fontem Holdings 1 B.V.*, IPR2017-01120, Paper 8, Patent Owner's Preliminary Response (P.T.A.B. Jul. 25, 2017)
Ex. 2050	*R.J. Reynolds Vapor Co. v. Fontem Holdings 1 B.V.*, IPR2017-01120, Paper 11, Decision Institution of Inter Partes Review (P.T.A.B. Oct. 23, 2017)
Ex. 2051	*R.J. Reynolds Vapor Co. v. Fontem Holdings 1 B.V.*, IPR2017-01319, Paper 2, Petition for *Inter Partes* Review of U.S. Patent No. 9,326,549 (P.T.A.B. May 3, 2017)
Ex. 2052	*R.J. Reynolds Vapor Co. v. Fontem Holdings 1 B.V.*, IPR2017-01319, Paper 6, Patent Owner's Preliminary Response (P.T.A.B. Aug. 16, 2017)
Ex. 2053	*R.J. Reynolds Vapor Co. v. Fontem Holdings 1 B.V.*, IPR2017-01319, Paper 7, Decision Denying *Inter Partes* Review (P.T.A.B. Aug. 16, 2017)
Ex. 2054	*R.J. Reynolds Vapor Co. v. Fontem Holdings 1 B.V.*, IPR2017-01642, Paper 1, Petition for *Inter Partes* Review of U.S. Patent No. 9,370,205 (P.T.A.B. Jun. 26, 2017)
Ex. 2055	*R.J. Reynolds Vapor Co. v. Fontem Holdings 1 B.V.*, IPR2017-01642, Ex. 1004, Declaration of Dr. Robert H. Sturges (P.T.A.B. Jun. 26, 2017)
Ex. 2056	*R.J. Reynolds Vapor Co. v. Fontem Holdings 1 B.V.*, IPR2017-01642, Paper 9, Patent Owner's Preliminary Response (P.T.A.B. Oct. 23, 2017)

Patent Owner's Exhibits	
Exhibit	**Description**
Ex. 2057	*R.J. Reynolds Vapor Co. v. Fontem Holdings 1 B.V.*, IPR2017-01642, Paper 10, Decision Denying Institution of *Inter Partes* Review (P.T.A.B. Jan. 16, 2018)
Ex. 2058	*R.J. Reynolds Vapor Co. v. Fontem Holdings 1 B.V.*, IPR2018-00627, Paper 2, Petition for *Inter Partes* Review of U.S. Patent No. 8,393,331 (P.T.A.B. Mar. 1, 2018)
Ex. 2059	European Patent Application Publication No. 0358002A2
Ex. 2060	U.S. Patent No. 4,947,875 ("Brooks '875")
Ex. 2061	*Fontem Ventures B.V. v. R.J. Reynolds Vapor Company,* U.S. District Court for the Middle District of North Carolina, Case 16-cv-01255, Dkt. 50, Amended Memorandum of Points and Authorities in Support of Defendants Motion to Stay Litigation Pending Inter Partes Review (Nov. 2, 2016)
Ex. 2062	*Fontem Ventures B.V. v. R.J. Reynolds Vapor Company,* U.S. District Court for the Middle District of North Carolina, Case 17-cv-00175, Dkt. 1, Complaint (Mar. 1, 2017)
Ex. 2063	*Fontem Ventures B.V. v. R.J. Reynolds Vapor Company,* U.S. District Court, Middle District of North Carolina, Case 16-cv-01255, Dkt. 148, Claim Construction Order (Mar. 12, 2018)
Ex. 2064	*Microsoft Corp. v. Global Tech., Inc.*, IPR2016-00663 and IPR2016-00669, Paper 22, Order - Conduct of the Proceedings (P.T.A.B. Mar. 21, 2017)
Ex. 2065	*Ex parte Shaw*, Appeal No. 1997-3258, Paper 94, Decision on Appeal (B.P.A.I. 2004)
Ex. 2066	*Ex parte Shaw*, Appeal No. 1997-3258, Paper 109, Memorandum Opinion and Order Denying Rehearing (B.P.A.I. 2005)
Ex. 2067	*US Endodontics, LLC v. Gold Standard Instruments, LLC,* IPR2015-01476, Paper 13, Decision Denying Institution of *Inter Partes* Review (P.T.A.B. Oct. 26, 2015)

Patent Owner's Exhibits	
Exhibit	**Description**
Ex. 2068	*Neil Ziegmann, N.P.Z. v. Stephens*, IPR2015-01860, Paper 13, Decision on Request for Rehearing (P.T.A.B. Sept. 6, 2017)
Ex. 2069	*Benitec Biopharma Ltd. v. Cold Spring Harbor Laboratory*, IPR2016-00014, Paper 7, Decision Denying Institution of *Inter Partes* Review (P.T.A.B. Mar. 23, 2016)
Ex. 2070	*Gen. Plastic Indus. Co., Ltd. v. Canon Kabushiki Kaisha,* IPR2016-01357, Paper 19, Decision Denying Petitioner's Requests for Rehearing (P.T.A.B. Sep. 6, 2017)
Ex. 2071	*Samsung Elecs. Co., Ltd. v. Elm 3DS Innovations, LLC*, IPR2017-01305, Paper 11, Decision Denying Institution of *Inter Partes* Review (P.T.A.B. Oct. 17, 2017)
Ex. 2072	*NetApp Inc. v. Realtime Data LLC*, IPR2017-01660, Paper 17, Decision Denying Institution of *Inter Partes* Review (P.T.A.B. Jan. 25, 2018)
Ex. 2073	*Nautilus Hyosung Inc. v Diebold, Inc.*, IPR2017-00426, Paper 17, Decision Denying Institution of *Inter Partes* Review (P.T.A.B. Jun. 22, 2017)
Ex. 2074	'632 Patent File History (Application No. 13/740,011) - January 26, 2013 Information Disclosure Statement considered by Examiner January 24, 2015
Ex. 2075	'632 Patent File History (Application No. 13/740,011) - July 24, 2015 Information Disclosure Statement considered by Examiner August 6, 2015
Ex. 2076	'632 Patent File History (Application No. 13/740,011) - July 11, 2016 Information Disclosure Statement considered by Examiner July 14, 2016
Ex. 2077	'632 Patent File History (Application No. 13/740,011) - June 12, 2013 Statement of Related Applications
Ex. 2078	'632 Patent File History (Application No. 13/740,011) - October 7, 2015 Notice of Decision Denying Institution of Inter Partes Review of Parent 8,365,742

Patent Owner's Exhibits	
Exhibit	**Description**
Ex. 2079	'632 Patent File History (Application No. 13/740,011) - December 22, 2015 Statement of Related Applications
Ex. 2080	'632 Patent File History (Application No. 13/740,011) - January 13, 2016 Supplemental Statement of Related Applications
Ex. 2081	U.S. Patent No. 5,327,917 (Lekwauwa et al.)
Ex. 2082	*R.J. Reynolds Vapor Company v. Fontem Holdings 1 B.V.*, IPR2016-01268, Paper 63, Final Written Decision (P.T.A.B. Dec. 19, 2017)
Ex. 2083	*R.J. Reynolds Vapor Company v. Fontem Holdings 1 B.V.*, IPR2016-01692, Paper 45, Final Written Decision (P.T.A.B. Mar. 2, 2018)
Ex. 2084	Merriam Webster's Collegiate Dictionary (11th ed. 2003), selected pages
Ex. 2085	Random House Webster's Unabridged Dictionary (2nd ed. 2001), selected pages

I. INTRODUCTION

R.J. Reynolds Vapor Company's Petition for *Inter Partes* Review asserts that claims 14-16 and 18 of U.S. Patent No. 9,456,632 ("'632 Patent") are obvious over U.S. Patent No. 4,947,874 ("Brooks;" Ex. 1003) in combination with U.S. Patent No. 2,057,353 ("Whittemore;" Ex. 1004). Petition, pp. 1, 7.

The Petition states that its ground for unpatentability is premised on the assertion that Brooks discloses a "resistance heating component" separate from a "porous substrate." Petition, p. 18. Because the same parties litigated this exact issue in IPR2016-01270 and the Board decided that Brooks does not disclose a heating component separate from a porous substrate, Petitioner is collaterally estopped from re-litigating the issue here. Ex. 1029, p. 13; Ex. 2019, pp. 4-5.

Since the issue of whether Brooks discloses a "resistance heating component" separate from a "porous substrate" was previously decided by the Board, institution here should also be denied under §325(d). Denial under §325(d) is further warranted by the prosecution history of the '632 Patent. In two earlier proceedings involving Fontem patents (IPR2016-01309 and IPR2017-01642), the Board denied institution on the basis that Whittemore and two references the Board deemed substantially identical to Brooks had been included in IDSs submitted during prosecution. Here, the argument for denial under §325(d) is even stronger. As in those earlier proceedings, Whittemore and two references substantially

identical to Brooks were submitted by Patent Owner and considered by the examiner, along with Brooks itself and another reference that Patent Owner refers to as "substantially identical" to Brooks (Petition, p. 24). However, during prosecution of the '632 Patent the examiner was also repeatedly made aware that Brooks and Whittemore had been asserted, in combination with one another and with other references, in four IPRs against U.S. Patent No. 8,365,742 ("'742 Patent"), the parent of the '632 Patent.

Denial of institution is also warranted under §314(a). Petitioner has been aware of Brooks and Whittemore since at least 1990, and filed a petition asserting Whittemore against the '742 Patent and a petition asserting Brooks against another Fontem patent family in July 2016. Petitioner filed a petition based on the combination of Brooks and Whittemore against a different Fontem patent family in June 2017, and that petition relied on the same characterization of Brooks that Petitioner relies on here. Petitioner delayed filing this Petition until it had the opportunity to preview Fontem's response and the Board's decision in that earlier proceeding, along with numerous other proceedings in which Fontem and the Board have addressed Brooks and Whittemore. Petitioner offers no excuse for its delay, which prejudices Patent Owner and wastes Board resources by attempting to re-litigate issues that have already been decided.

Substantively, Petitioner's arguments regarding combining Brooks and Whittemore lack merit. The challenged claims all require a heating wire wound on a porous component, a liquid storage component separate from the atomizer assembly, and a battery assembly located within an elongated cylindrical housing. As set forth at (VI)(D)-(H) below, Brooks does not teach or suggest any of those elements, and a person of ordinary skill in the art (POSITA) would not have been motivated to incorporate them into the Brooks device.

Contrary to Petitioner's assertion, Brooks does not disclose the use of a heater wire coil in its device. Brooks refers to coils only in the context of its Background discussion of prior art devices. A POSITA would have had no reasonable motivation to incorporate the heater wire coil of Whittemore into Brooks because he or she would have recognized that a coil would not be more efficient than the heating elements actually disclosed in Brooks.

Petitioner asserts that it would have been obvious for a POSITA to wind the "resistance heating component" of Brooks around the "porous substrate" to form a coil based on the teachings of Whittemore. As acknowledged by Petitioner, this proposed modification requires Brooks' "resistance heating component" and "porous substrate" to be separate components. But, the Board has already rejected this argument regarding Brooks in a previous IPR. Since Brooks' "resistance

heating component" and "porous substrate" are not separate components, a POSITA could not wind the "resistance heating component" around the "porous substrate" in the manner proposed by Petitioner.

Brooks also does not disclose a liquid storage component separate from the atomizer, much less two liquid storage components as asserted by Petitioner. Instead, Brooks consistently teaches that liquid is directly impregnated into the heating element; indeed, this is presented as a distinguishing feature of the disclosed device. A POSITA would recognize that the absence of a separate liquid storage component is consistent with Brooks' use of a disposable component designed to deliver only 6-10 puffs.

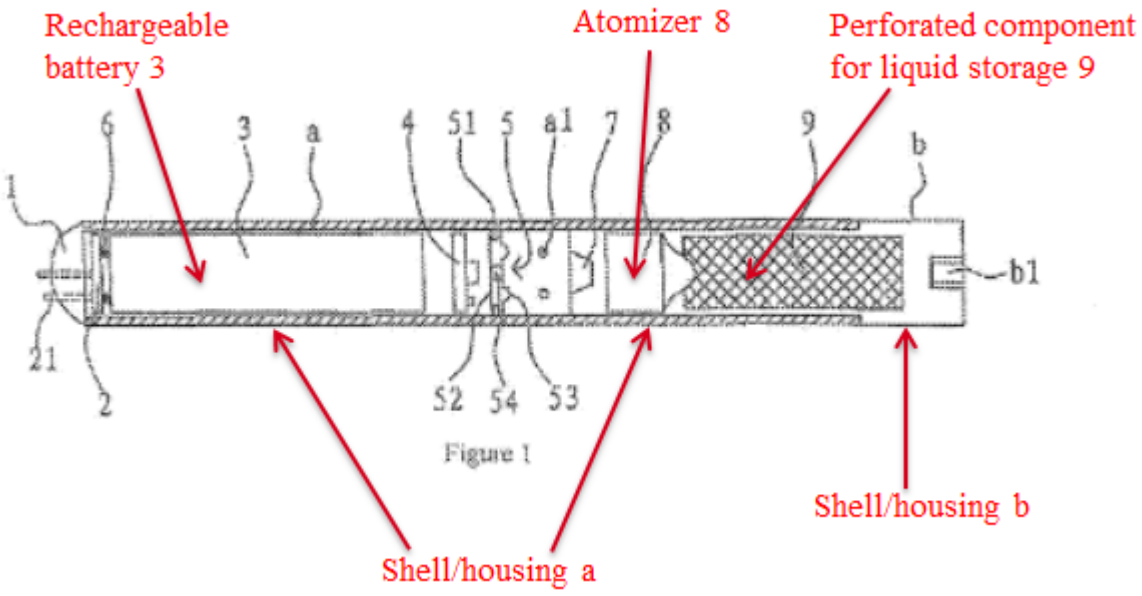
Finally, Brooks does not teach or suggest a battery assembly within an elongated cylindrical housing. Contrary to Petitioner's argument, the "cigarette holder" embodiment disclosed in Brooks does not include a battery assembly in a cylindrical housing, and Petitioner fails to establish a reasonable motivation for a POSITA to adopt a different configuration.

II. '632 PATENT OVERVIEW

The '632 Patent issued from U.S. Patent Appl. No. 13/740,011 ("'011 Application"). The '011 Application was a continuation of U.S. Patent Appl. No. 13/079,937 ("'937 Application"), which issued as the '742 Patent. The '937 Application was a divisional of U.S. Patent Appl. No. 12/226,818 ("'818

Application"), which issued as U.S. Patent No. 8,156,944, and which is now in reexamination as U.S. Appl. No. 95/002,235. The '818 Application was a national stage entry of PCT Appl. No. PCT/CN07/01575, which was filed May 15, 2007, and published as PCT Publ. No. WO07/131449. Other patents in this family include U.S. Patent Nos. 9,326,548 ("'548 Patent") and 9,808,034 ("'034 Patent").

In one embodiment, the '632 Patent discloses a vaporizing device comprising a cylindrical housing formed by shell/housing a and shell/housing b that contains a battery assembly comprising a battery, an atomizer assembly comprising an atomizer, and a liquid storage component. Fig. 1 of the '632 Patent, below (annotations added), shows an example of this embodiment:



Figs. 17 and 18 of the '632 Patent, below (annotations added), show two different views of the atomizer wherein a heating wire is wound (i.e., coiled) on a porous component.

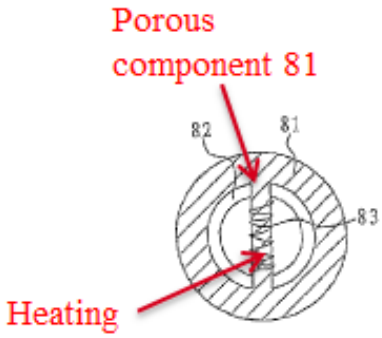


Figure 17

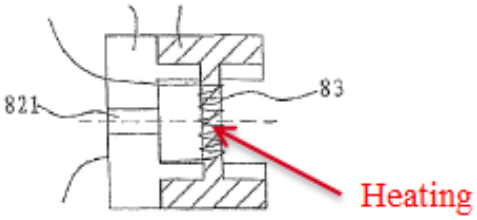


Figure 18

The challenged '632 Patent claims include one independent claim (claim 14), set forth below:

> Claim 14: A vaporizing device, comprising:
>
> a battery assembly and an atomizer assembly within an elongated cylindrical housing with the battery assembly electrically connected to the atomizer assembly;
>
> a liquid storage component in the elongated cylindrical housing;
>
> with the elongated cylindrical housing having one or more air inlets;
>
> the atomizer assembly including an atomization chamber having a front end opening and a back end opening to allow air to flow into the atomization chamber from the front end opening and out from the back end opening; and

> a heating wire coil wound on a porous component that is perpendicular to a longitudinal axis of the elongated cylindrical housing, with the heating wire coil in an air flow path between the front end opening and the back end opening of the atomization chamber.

The '632 Patent and the related '742, '944, and '548 Patents have previously been involved in ten *inter partes* reviews. One of those petitions asserted Brooks in combination with Whittemore, and five others asserted Brooks or Whittemore in combination with other references. Exs. 2005, 2009, 2012, 2021, 2035, 2039. No claims were invalidated in any of the six proceedings that relied on Brooks and/or Whittemore – the Board issued a Final Written Decision in favor of Patent Owner in IPR2016-01268 and IPR2016-01692; the Board denied the petition to institute in IPR2015-00859; and IPR2015-01587, IPR2016-01303, and IPR2017-00204 terminated via settlement prior to an institution decision. Exs. 2007, 2011, 2023, 2040, 2082, 2083.

III. PERSON OF ORDINARY SKILL IN THE ART

A POSITA with respect to the '632 Patent 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. Ex. 2001, ¶17. Petitioner and Sturges assert that a POSITA is a person with "at least the equivalent of a

Bachelor's degree in electrical engineering, mechanical engineering, or biomedical engineering or related fields, along with at least 5 years of experience designing electromechanical devices, including those involving circuits, fluid mechanics and heat transfer." Petition, p. 14; Ex. 1002, ¶23. Under either definition, Petitioner has failed to meet its burden.

IV. CLAIM CONSTRUCTION

A. "Liquid Storage Component"

Patent Owner's Construction	Petitioner's Construction
no construction necessary or, alternatively, a component for storing liquid	none

The challenged claims all recite a "liquid storage component." The ordinary and customary meaning of "liquid storage component" is "a component for storing liquid." Ex. 2001, ¶20.

In District Court, Patent Owner proposed the same construction it proposes here, or alternatively that no construction was necessary. Ex. 2063, p. 4. Petitioner argued for a much narrower construction: "a porous material for storing liquid within a cigarette liquid bottle." *Id.* The District Court rejected Petitioner's construction and agreed with Patent Owner that no construction was necessary. Ex. 2063, p. 7.

Patent Owner's construction is supported by the '632 Patent specification. For example, the '632 Patent discloses "[a] component for liquid storage of the cigarette bottle assembly stores the nicotine liquid." Ex. 1001, 1:58-59. "[T]he cigarette bottle assembly includes … a perforated component for liquid storage," wherein "[t]he perforated component for liquid storage (9) is made of such materials as PLA fiber, terylene fiber or nylon fiber, which are suitable for liquid storage." Ex. 1001, 4:5-10. "As shown in FIGS. 1-9, one end of the porous component (81) lies against one end surface of the perforated component for liquid storage (9), and contacts the perforated component for liquid storage (9)," and "absorbs the cigarette liquid from the perforated component for liquid storage (9)." Ex. 1001, 4:21-25. "The perforated component for liquid storage (9) of the cigarette bottle assembly and the porous component (81) of the atomizer (8) contact each other to achieve the capillary impregnation for liquid supply." Ex. 1001, 4:62-65.

Extrinsic evidence also supports Patent Owner's construction of "liquid storage component" as "a component for storing liquid." Merriam Webster's Collegiate Dictionary defines "storage" as "space or a place for storing." Ex. 2084, p. 1230. Random House Webster's Dictionary defines "storage" to mean "capacity or space for storing." Ex. 2085, p. 1877.

In view of the specification of the '632 Patent and the extrinsic evidence regarding the meaning of the term "storage," "liquid storage component" should be construed as "a component for storing liquid." Ex. 2001, ¶¶20-22.

V. SUMMARY OF ALLEGED PRIOR ART

A. Brooks

Brooks issued in August 1990 and is assigned on its face to real party-in-interest R.J. Reynolds Tobacco Company. Petition, pp. 1-2; Ex. 1003, Title Page. Brooks discloses a "smoking article" having two basic parts: a "disposable portion" ("cigarette 12") and a "reusable controller" ("hand-held controller 14"). Ex. 1003, Title Page, Abstract; Ex. 1029, p. 8.

Brooks discloses an electrical smoking article that includes heating element 18, shown in purple in annotated Fig. 1 of Brooks below. Heating element 18 sits within disposable cigarette 12, which also includes a roll of tobacco 20 (brown). Ex. 1003, 7:17-20. Disposable cigarette 12 connects to reusable controller 14, which includes, among other components, pressure sensing switch 28, control circuit 30, and batteries 34A and 34B. Ex. 1003, 4:35-38, 7:20-25. Once the liquid in disposable cigarette component 12 is exhausted, a user removes the spent cartridge, throws it away, and replaces it with a new one. Ex. 1003, 5:58-62.

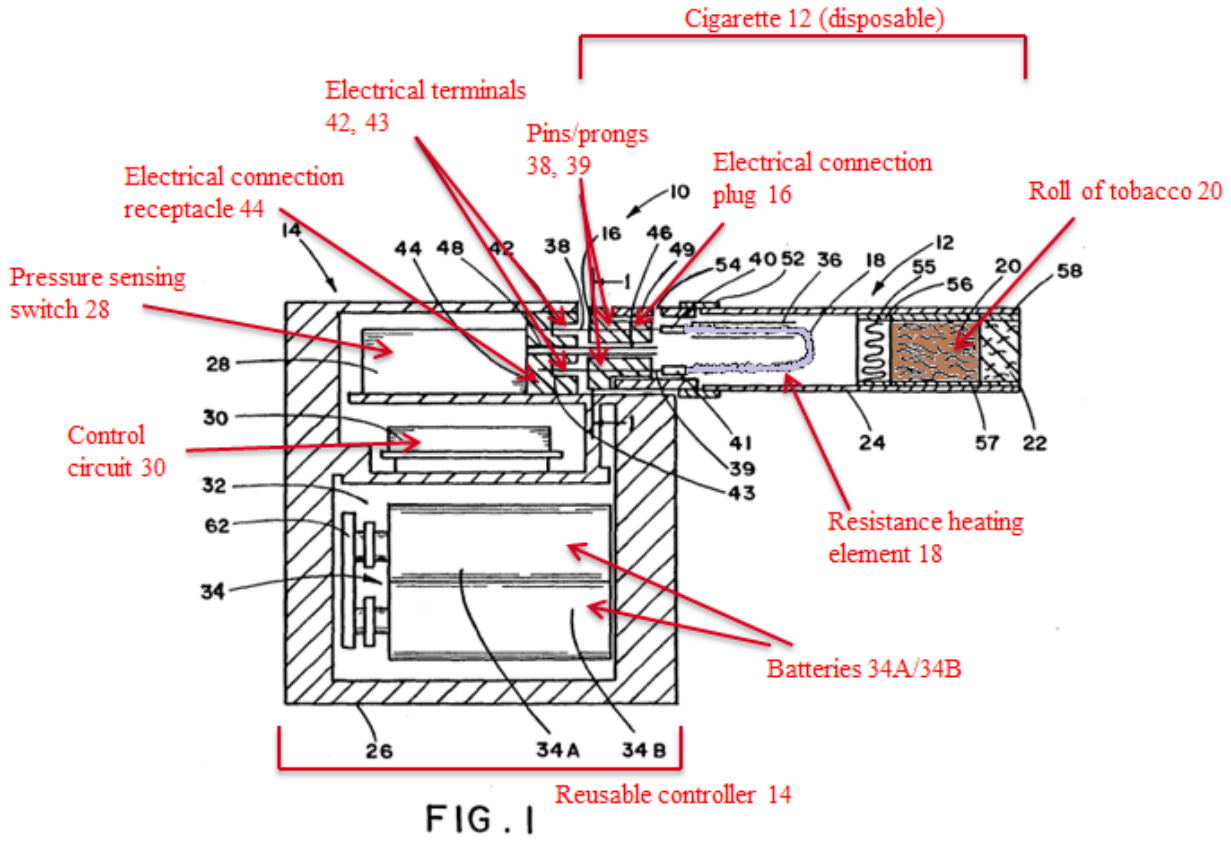


FIG. 1

Brooks does not contemplate a liquid storage component separate from the atomizer. Ex. 2001, ¶¶30, 34-40. Instead, Brooks discloses that liquid is held within heating element 18, which is made from fibrous or porous material, electrically resistant, and capable of holding an "aerosol forming substance." Ex. 1003, 4:7-12, 7:26-30, 7:65-8:3. Brooks discloses that the heating element needs to be "air permeable" and have a "high surface area," specifically "greater than about 1,000 m^2/g." Ex. 1003, 4:7-12, 4:12-25.

Brooks discloses that a heating element with these features is "particularly advantageous" because it is "capable of holding and efficiently releasing relatively

large quantities of liquid aerosol forming substances," enough to provide aerosol in "6 to 10 puffs" like the puff life of a typical cigarette.[1] Ex. 1003, 3:30-34; 4:25-31, 6:32-36. The design ensures that the "aerosol forming substance is in a heat exchange relationship with the electrical heating element." Ex. 1003, 8:4-8. When a user inhales, heating element 18 increases in temperature "which in turn heats and volatilizes the aerosol forming substance" contained within the heater. Ex. 1003, 10:45-48. As a result, an aerosol forms, picks up tobacco flavor while passing through tobacco roll 20, and exits into a user's mouth. Ex. 1003, 10:48-53.

Brooks further describes that its preferred heating elements must have "low mass, low density, and moderate resistivity," be "thermally stable at the temperatures experience during use," "heat and cool rapidly," use energy efficiently, provide "almost immediate volatilization of the aerosol forming substance," prevent waste of the aerosol forming substance, and permit "precise

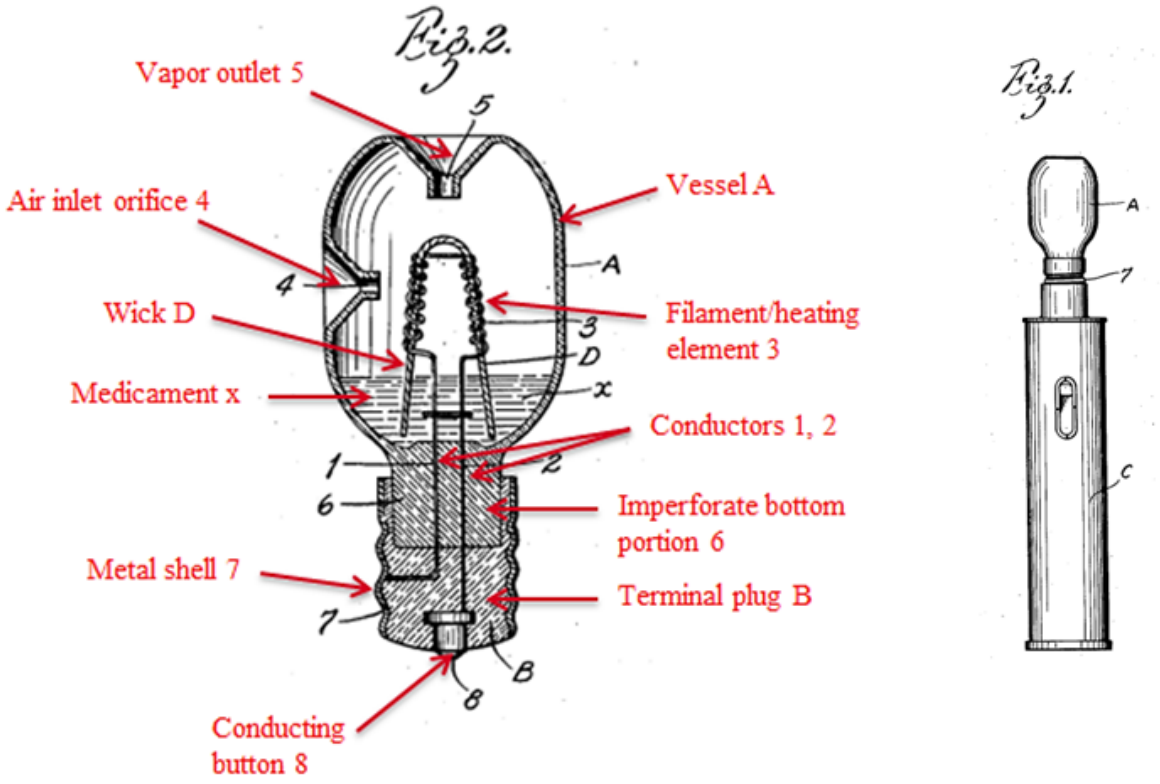
[1] Brooks lists the puff range for its device as 6 to 10 puffs (Ex. 1003, 4:2-6), 6 puffs or more (Ex. 1003, 4:29-31, 10:67), and "preferably at least about 6 puffs, more preferably at least about 10 puffs" (Ex. 1003, 6:34-36). The examples use the disclosed device to generate 10 puffs (Ex. 1003, 18:29, 19:65, 21:48, 22:39) or 12 puffs (Ex. 1003, 21:40). For simplicity, Patent Owner will reference the 6 to 10 puff range herein.

control of the temperature range experienced by the aerosol forming substance." Ex. 1003, 7:34-47. The heating element must heat rapidly based on current supplied by Brooks' current actuation and regulation mechanisms and provide 0.5 mg or preferably 0.8 mg of aerosol per puff. Ex. 1003, 5:38-58, 6:26-28.

B. Whittemore

Whittemore issued in October 1936 and is included in the "References Cited" section of Brooks. Ex. 1004, Title Page; Ex. 1003, Title Page. Whittemore discloses a "vaporizing unit[] for therapeutic apparatus." Ex. 1004, p. 1, left col., ll. 1-2. This device, illustrated in annotated Fig. 2 of Whittemore below, resembles a lightbulb attached to a flashlight body. Wick D contacts liquid medicament *x* in a liquid source and moves liquid to the filament/heating element 3 by capillary action. Ex. 1004, p. 1, left col., ll. 19-28; Ex. 2001, ¶33. Terminal plug B "is adapted to be plugged into or positioned in a terminal socket forming part of an electric circuit, such, for example, as the receptacle or socket of an ordinary flashlight C." Ex. 1004, p. 1, left col, ll. 39-45. Fig. 1 of Whittemore, below, illustrates terminal plug B plugged into ordinary flashlight C. Electricity flows to filament/heating element 3 via conductors 1 and 2, wherein "conductor 1 is soldered to the inner surface of the metal shell 7 of the plug B, and the other conductor 2 is soldered to the inner surface of the center conducting button 8 of the plug." Ex. 1004, p. 1, left col., ll. 45-49. Fig. 2 of Whittemore, below (annotations

added), illustrates the disclosed vaporizing unit, while Fig. 1 of Whittemore, below, illustrates this vaporizing unit screwed into flashlight C.



VI. THE PETITION FAILS TO SHOW A REASONABLE LIKELIHOOD THAT ANY CHALLENGED CLAIM OF THE '632 PATENT IS UNPATENTABLE

A. Collateral Estoppel Precludes Relitigating Whether Brooks' "Resistance Heating Component" and "Porous Substrate" Are Separate Components

"Under the doctrine of issue preclusion, also called collateral estoppel, a judgment on the merits in a first suit precludes relitigation in a second [proceeding] of issues actually litigated and determined in the first suit." *Microsoft Corp. v. Global Tech., Inc.*, IPR2016-00663 and IPR2016-00669, Paper 24 at 7–8 (P.T.A.B.

Mar. 21, 2017) (Ex. 2064) (citing *In re Freeman*, 30 F.3d 1459, 1465 (Fed. Cir. 1994)). In *Levi Strauss & Co. v. Abercrombie & Fitch Trading Co.*, the Federal Circuit annunciated four preconditions for the application of issue preclusion:

> (1) identity of the issues in a prior proceeding;
>
> (2) the issues were actually litigated;
>
> (3) the determination of the issues was necessary to the resulting judgment; and
>
> (4) the party defending against preclusion had a full and fair opportunity to litigate the issues.

719 F.3d 1367, 1371 (Fed. Cir. 2013).

Collateral estoppel attaches to adverse findings by the Board. *See, e.g.*, *Ex parte Shaw*, Appeal 1997-3258, Paper 94 (B.P.A.I. 2004) (Ex. 2065) (Board affirmed enablement rejection on appeal based on previous decision on the same issue in an interference proceeding involving a grandparent application).

Here, collateral estoppel precludes Petitioner from relitigating the key issue underlying its asserted grounds of unpatentability. Every challenged claim of the '632 Patent requires "a heating wire coil wound on a porous component." To meet this limitation, Petitioner asserts that Brooks discloses an "intimate contact" embodiment with a "resistance heating component" and a separate "porous substrate." Petition at 11-12, 17-21, 24-29, 54. Petitioner relies on this so-called "intimate contact" embodiment to argue that it would have been obvious to adapt

Brooks to include Whittemore's heating coil wrapped around Brooks' "porous substrate" in order to arrive at the "heater wire wound on a part of the porous body" limitation of the claims. Petition, pp. 24-29. Petitioner admits that "[t]he 'intimate contact' embodiment forms the basis for the unpatentability analysis in this petition." Petition, p. 18.

This precise issue was previously litigated before the Board by the same parties in IPR2016-01270. There, the Board rejected Petitioner's assertion that Brooks discloses a "resistance heating component" separate from a "porous substrate":

> In light of the entirety of Brooks's disclosure describing the same element, heating element 18, as both holding aerosol forming substances and atomizing them, Brooks's lone statement that "*[o]ther suitable heating elements* include . . . porous substrates in intimate contact with resistance heating components" ([Ex. 1003], 7:65–8:3 (emphasis added)) does not persuade us that "in intimate contact" discloses that the porous substrate is separate from the resistance heating components of the heating element. *See* Pet. 38.

Ex. 1029, pp. 12-13.

Because the Board's finding that "the 'intimate contact' embodiment of Brooks does not teach that the porous substrate is separate from the resistance heating component of the heating element" was necessary to its judgment that

Brooks did not anticipate the claims at issue in IPR2016-01270, Petitioner filed a request for rehearing on that specific finding. Ex. 2018, pp. 2-4. The Board denied the request and reiterated its finding that Brooks does not teach a "resistance heating component" separate from a "porous substrate":

> We remain unpersuaded by this statement [referring to Brooks, 7:65-8:3] in light of the entirety of Brooks's disclosure describing the same element, heating element 18, as both holding and atomizing aerosol forming substances. In other words, Brooks's use of the phrase "in intimate contact" to refer to the physical relationship between its "porous substrates" and "resistance heating components," without more, does not persuade us that the element are separate, but in direct contact.
>
> ….
>
> [W]e remain unpersuaded by Brooks's disclosure referred to by Petitioner as a "different" embodiment. Brooks's use of the term "in intimate contact," *by itself*, to describe the physical relationship between its "porous substrates" and "resistance heating components" is not the same as disclosing that the elements are in "direct contact." Petitioner has not sufficiently shown that Brooks's use of "in intimate contact" for this embodiment is any different than its repeated description of heating element 18 as both holding and atomizing the liquid. And, more importantly, there is no illustration in Brooks… of

> the relevant two elements (porous substrate and resisting heating element) being separate.

Ex. 2019, pp. 4-5, emphasis in the original.

Petitioner asserts that the Board's determination in IPR2016-01270 should not apply here because the claims at issue in that proceeding required a "liquid storage body in physical contact with the atomizer," whereas the present claims include no such requirement. Petition, pp. 11-12. But, the claim language at issue in IPR2016-01270 reflects that the Board's finding that the "intimate contact" embodiment of Brooks does not disclose a "resistance heating component" separate from the "porous substrate" was necessary to the resulting judgment. As the Board explained:

> Claim 15, and thus also claim 16, requires "the liquid storage body in physical contact with the atomizer." For this limitation, Petitioner refers to Brooks' teachings with respect to heating element 18. Pet. 37–42. Patent Owner, however, disputes that Brooks discloses the claimed "liquid storage body." Prelim. Resp. 21–33.
>
> Relying on Brooks' statement that "[o]ther suitable heating elements include . . . porous substrates in intimate contact with resistance heating components," Petitioner equates Brooks' "porous substrates" with the recited "liquid storage body" and the "resistance heating components" of heating element 18 with the recited "atomizer." Pet. 38 (citing Ex.

> [1003], 7:65–8:3). According to Petitioner, a skilled artisan "would have understood that, in this arrangement, the porous substrate functions to store the aerosol forming substance and is in physical contact with the resistance heating components, which comprise the 'atomizer.'"

Ex. 1029, p. 10.

The Board's adverse finding that the "intimate contact" embodiment of Brooks fails to disclose a porous substrate separate from the resistance heating component was necessary to the Board's decision that Brooks did not disclose the claimed "liquid storage body in physical contact with the atomizer," and its judgment that "Petitioner has not established a reasonable likelihood of prevailing on its assertions that claims 15 and 16 are unpatentable, as either anticipated by Brooks or as unpatentable over the combination of Brooks, Cook, and/or Takeuchi." Ex. 1029, pp. 13-14. And, as Petitioner admits, "[t]he 'intimate contact' embodiment forms the basis for the unpatentability analysis in this petition." Petition, p. 18.

In IPR2016-01270, Petitioner had a full and fair opportunity to litigate, and in fact did litigate, the issue of whether Brooks discloses an embodiment in which the "resistance heating component" and "porous substrate" are separate components. The Board carefully considered Brooks and found that it does not disclose a "resistance heating component" separate from a "porous substrate." This

finding was necessary to the resulting judgment in both the Decision Denying Institution and the subsequent Decision Denying the Request for Rehearing, which were non-appealable. Accordingly, collateral estoppel prevents Petitioner from re-litigating this issue here. Since the Board's previous characterization of Brooks negates Petitioner's sole ground for unpatentability, the Petition should be denied.

Nonetheless, Petitioner asserts that the Board's determination should not apply because it presents new evidence here.[2] Petition, p. 11. Because collateral estoppel applies, Petitioner cannot submit new evidence to re-litigate an issue that was previously decided. Ex. 2065 ("[T]he 'evidence' applicant seeks to have considered is not 'admissible' because applicant is precluded from re-visiting enablement of applicant's claimed apparatus…"); *Ex parte Shaw*, Appeal No. 1997-3258, Paper 109 at 14 (B.P.A.I. 2005) (Ex. 2066) ("The so-called 'new evidence' is no reason, in this case, to decline to apply issue preclusion. After all, the reason for issue preclusion is to keep from re-litigating an issue already decided.").

B. The Petition Should be Denied Under §325(d)

The Board has discretion to deny a petition as redundant when "the same or substantially the same prior art or arguments" have been previously presented to

[2] Petitioner's alleged "new evidence" is addressed more fully in (VI)(E) below.

the Office. 35 U.S.C. §325(d); 37 C.F.R. §42.108; *Synaptics Inc. v. Amkor Technology, Inc.*, IPR2017-00085, 2017 WL 1403668, at *3 (P.T.A.B., Apr. 18, 2017); *US Endodontics, LLC v. Gold Standard Instruments, LLC*, IPR2015-01476, Paper 13 at 8 (P.T.A.B. Oct. 26, 2015) (Ex. 2067). "[I]n determining whether to exercise our discretion under Section 325(d), we first examine whether the grounds asserted in the instant Petition present 'the same or substantially the same prior art or arguments' as those previously presented to the Office,' and '[t]hen, we determine whether it is appropriate to exercise our discretion to deny institution." *R.J. Reynolds Vapor Co. v. Fontem Holdings 1 B.V.*, IPR2017-01118 and IPR2017-01119, Paper 8 at 4 (P.T.A.B. Oct. 4, 2017) (Ex. 2047); citing *Neil Ziegmann, N.P.Z. v. Stephens*, IPR2015-01860, Paper 13 at 14-15 (P.T.A.B. Sept. 6, 2017) (Ex. 2068). "[T]he use of the word 'or' in 'prior art or arguments' indicates that the presence of previously presented prior art *or* arguments is sufficient to invoke Section 325(d)." *Id.* at 4-5; citing *Ziegmann* at 19. Accordingly, the Board may determine it is appropriate to exercise its discretion to deny under §325(d) where the cited art has been previously considered, even where the precise arguments differ.

Here, the Board should exercise its discretion to deny institution under §325(d) because the argument that Petitioner acknowledges "forms the basis for

the unpatentability analysis in this petition" (Petition, p. 18), namely that Brooks discloses a "resistance heating component" separate from a "porous substrate," has previously been presented to and rejected by the Board. As discussed above at (VI)(A), the Board held in IPR2016-01270 that the "resistance heating component" and "porous substrate" of Brooks are not separate components. Exs. 1029, 2019.

Denial under §325(d) is further warranted by the examiner's consideration of the cited references during prosecution of the '632 Patent.

In *Becton-Dickinson v. Braun*, the Board laid out six non-exclusive factors to be considered when addressing §325(d): (1) similarities and material differences between the asserted art and the prior art involved during examination; (2) cumulative nature of the asserted art and the prior art evaluated during examination; (3) extent to which the asserted art was evaluated during examination, including whether the prior art was the basis for rejection; (4) extent of the overlap between the arguments made during examination and the manner in which Petitioner relies on the prior art or Patent Owner distinguishes the prior art; (5) whether Petitioner has pointed out sufficiently how the Examiner erred in its evaluation of the asserted prior art; and (6) extent to which additional evidence and facts presented in the Petition warrant reconsideration of the prior art or arguments.

Becton-Dickinson and Company v. B. Braun Melsungen AG, IPR2017-01586, Paper 8 at 17-18 (P.T.A.B. Dec. 15, 2017) (Ex. 2036).

Contrary to Petitioner's assertion that "Brooks was not cited" in an Information Disclosure Statement (IDS) (Petition, p. 8), Brooks and Whittemore were both included in multiple IDSs during prosecution of the '632 Patent. As acknowledged by Petitioner, Whittemore was included in an IDS filed January 26, 2013. Petition, p. 8; Ex. 2074, p. 2 (Cite No. A25). Brooks and Whittemore were both included in an IDS filed July 24, 2015, which identified these references as exhibits in IPR2015-01587. Ex. 2075, p. 4 (Cite Nos. C15, C16). Another IDS filed July 11, 2016, included both references, identifying Brooks as an exhibit in IPR2016-01303 and Whittemore as an exhibit in both IPR2016-01303 and IPR2016-01268. Ex. 2076, pp. 1-3 (Cite Nos. C6, C7, C26). Brooks and Whittemore are both included in the References Cited section of the '632 Patent, where they are identified as exhibits from IPR2015-01587, IPR2016-01268, and IPR2016-01303. Ex. 1003, pp. 1, 4-5.

As acknowledged by Petitioner, several references similar to Brooks were also cited during prosecution of the '632 Patent. Petition, p. 8. U.S. Patent No. 4,947,875 ("the '875 Patent;" Ex. 2060) and EP Publ. No. 0358002 ("the EP Publication;" Ex. 2059) were both included in the IDS filed January 26, 2013, and

both are listed in the References Cited section of the '632 Patent. Ex. 2074, pp. 2-3 (Cite Nos. A38, B15); Ex. 1003, p. 2. The EP Publication claims priority to the application that issued as Brooks (US Patent Appl. No. 07/242,086), and the '875 Patent issued from an application filed the same day as the application that issued as Brooks. Ex. 1003, Title Page; Ex. 2059, Title Page; Ex. 2060, Title Page. The '875 Patent and the EP Publication have the same inventors as Brooks, and both were assigned to R.J. Reynolds Tobacco Company, i.e., Petitioner. Ex. 1003, Title Page; Ex. 2059, Title Page; Ex. 2060, Title Page.

In two previous proceedings involving Fontem patents challenged on the basis of Brooks in combination with Whittemore (IPR2016-01309 and IPR2017-01642, the latter involving the same parties as the current proceeding), the Board held that the EP Publication and the '875 Patent are substantially identical to Brooks. Ex. 2027, pp. 9-11 ("[a] comparison of Brooks, the EP Publication, and the '875 patent demonstrates that the smoking article described in the EP Publication and the flavor delivery article described in the '875 patent are the same in all material respects as the smoking article described in Brooks"); Exhibit 2057, pp. 9-11 ("the flavor delivery article described in the '875 patent and the smoking article described in the EP Publication are the same in all material respects as the smoking article described in Brooks").

U.S. Patent No. 4,922,901 ("'901 Patent;" Ex. 1015), which Petitioner acknowledges is "substantially identical to the Brooks patent," was also included in the IDS filed July 24, 2015, and is included in the References Cited section of the '632 Patent. Petition, pp. 24, 54; Ex. 2075, p. 1 (Cite No. A2); Ex. 1003, p. 2.

Since Brooks and Whittemore themselves, along with three references previously deemed substantially identical to Brooks, were explicitly placed before the examiner during prosecution of the '632 Patent, the first two *Becton* factors (similarities between, and cumulative nature of, asserted art and prior art involved during examination) weigh strongly in favor of denial under §325(d).

In addition to the numerous IDSs that listed Brooks, Whittemore, and the substantially identical Brooks references, these references were addressed in several substantive papers filed during prosecution of the '632 Patent. Like the IDSs, these papers alerted the examiner that Brooks and/or Whittemore had been asserted against the '632 Patent family in various proceedings.

A Statement of Related Applications filed June 12, 2013, stated that:

- An application from a different Fontem application (US Patent Appl. No. 13/560,789) was allowed by Examiner Mayes (i.e., the same examiner as the '632 Patent) over the' 875 Patent (Ex. 2077, p. 2);

- Rejections based on Brooks had been proposed by the requestor in reexamination of the grandparent '944 Patent (Ex. 2077, p. 2); and
- The '875 Patent was discussed with Examiner Mayes in an in-person interview during prosecution of the parent '742 Patent (Ex. 2077, pp. 2-3).

A Notice of Decision Denying Inter Partes Review of Parent 8,365,742 filed October 7, 2015, stated that the Board had denied institution of IPR2015-00859,[3] in which the petitioner had asserted Whittemore in combination with another reference against the parent '742 Patent. Ex. 2078, pp. 1-2.

A Statement of Related Applications filed December 22, 2015, stated that:

- "In IPR2015-01587 a Petition was filed asserting claims of U.S. Patent No. 8,365,742 [parent of '632 Patent] are invalid over… Brooks U.S. Patent No. 4,947,874; Whittemore U.S. Patent No. 2,057,353;… and specifically that… Claims 1-3 are obvious over Brooks in view of Whittemore" (Ex. 2079, p. 3);
- Whittemore had been asserted against the parent '742 Patent in IPR2015-00859, with the Board denying that petition "on the basis

[3] Due to a typographical error, IPR2015-00859 is misidentified as IPR2014-00859 in the Notice. Ex. 2078, p. 1.

that the Petitioner had not established a reasonable likelihood of prevailing with respect to the claims in the patent" (Ex. 2079, pp. 2-3);

- The '901 Patent had been cited in a rejection during prosecution of U.S. Patent Appl. No. 14/244,376, a continuation of the '632 Patent (Ex. 2079, p. 3).

The December 22, 2015, Statement also reiterated that rejections based on Brooks had been proposed by the requestor in reexamination of the grandparent '944 Patent, and that the '875 Patent had been discussed with Examiner Mayes in an in-person interview during prosecution of the parent '742 Patent. Ex. 2079, pp. 1-2.

A Supplemental Statement of Related Applications filed January 13, 2016, reiterated that Whittemore had been asserted against the parent '742 Patent in IPR2015-00859, and that the Board had denied that petition. Ex. 2080, p. 2.

In IPR2016-01309 and IPR 2017-01642, the latter of which involved the same parties as the present proceeding, the Board denied institution under §325(d) on the basis that the asserted references had been cited in IDSs during prosecution and therefore had been previously considered by the patent office. Ex. 2027, pp. 11-13; Ex. 2057, pp. 12-16. This is consistent with previous Board decisions. *See, e.g.*, *Benitec Biopharma Ltd. v. Cold Spring Harbor Laboratory*, IPR2016-00014,

Paper 7 at 10 (P.T.A.B. Mar. 23, 2016) (Ex. 2069) ("[a]n Examiner's initials on an IDS form 'provides… a clear record in the application to indicate which documents have been considered by the examiner in the application'").

Here, the grounds for denial under §325(d) are even stronger than they were in IPR2016-01309 and IPR2017-01642. As in IPR2016-01309 and IPR2017-01642, the references were included in IDSs that were considered by the examiner. However, in this case the examiner was also alerted on numerous occasions that the references had been asserted against the parent '742 Patent in four separate IPRs, both in combination with one another (IPR2015-01587) and in combination with other references (IPR2015-00859, IPR2016-01268, and IPR2016-01303). Ex. 2009, p. 1; Ex. 2005, p. 1; Ex. 2012, p. 1; Ex. 2021, p. 1. The prosecution documents also show that the '875 Patent and '901 Patent, both of which are substantially identical to Brooks, were cited in rejections against Fontem patents and discussed with the examiner in in-person interviews, respectively.

In view of the '632 Patent's prosecution history, there is no credible argument that the examiner did not know about and fully consider Brooks and Whittemore. Accordingly, the third *Becton* factor (extent to which art was evaluated during examination) weighs in favor of denial under §325(d). The fourth *Becton* factor (extent of the overlap between the arguments made during

examination and the manner in which petitioner relies on the prior art) also weighs in favor of denial. The examiner was aware that Brooks and Whittemore had been asserted in combination with one another the parent '742 Patent in IPR2015-00859. In that proceeding, the petitioner relied on the same argument Petitioner makes here, namely that it would have been obvious to a POSITA to replace the heating wire of Brooks with the heater coil of Whittemore. Ex. 2005, pp. 35-39. Thus, there was significant overlap in the arguments and manner in which Petitioner relies on the cited art.

Petitioner includes IPR2016-01309 and IPR2017-01642 in its list of related proceedings, but makes no effort to address the Board's decisions in those cases or explain why a different decision should be warranted in this proceeding despite the nearly identical circumstances. Petition, pp. 3, 5. Instead, Petitioner cites several other Board decisions for its assertion that "[u]nder situations such as this, the Board has rejected arguments that institution should be denied under 35 U.S.C. §325(d)." Petition, pp. 8-10. However, the closest "situation[] such as this" is plainly IPR2016-01309 and IPR2017-01642, which involved the same patent family and asserted prior art as the present case.

Because the Board has already considered and rejected the argument upon which Petitioner's sole ground of unpatentability is based, and because the

examiner considered the cited references during prosecution of the '632 Patent and was aware they were being asserted in numerous IPRs involving the parent patent, institution should be denied under §325(d). Institution under these circumstances would present an undue "burden and expense to Patent Owner in having to defend the… patent based on substantially the same prior art or arguments already considered by the Office." Ex. 2027, pp. 12-13.

C. The Petition Should be Denied Under §314(a)

The Board has discretion to deny *inter partes* review for follow-on petitions under 35 U.S.C. §314(a). This discretion is not subordinate to or encompassed by the Board's discretion under 35 U.S.C. 325(d). *Gen. Plastic Indus. Co., Ltd. v. Canon Kabushiki Kaisha*, IPR2016-01357, Paper 19 at 19 (P.T.A.B. Sept. 6, 2017) (Ex. 2070).

In *Gen. Plastic*, the Board articulated seven non-exhaustive factors for determining whether to exercise its discretion to deny institution:

> 1. whether the same petitioner previously filed a petition directed to the same claims of the same patent;
>
> 2. whether at the time of filing of the first petition the petitioner knew of the prior art asserted in the second petition or should have known it;
>
> 3. whether at the time of filing of the second petition the petitioner already received the patent owner's preliminary

response to the first petition or received the Board's decision on whether to institute review in the first petition;

4. the length of time that elapsed between the time the petitioner learned of the prior art asserted in the second petition and the filing of the second petition;

5.whether the petitioner provides adequate explanation for the time elapsed between the filings of multiple petitions directed to the same claims of the same patent;

6. the finite resources of the Board; and

7. the requirement under 35 U.S.C. §316(a)(11) to issue a final determination not later than 1 year after the date on which the Director notices institution of review.

Gen. Plastic (Ex. 2070), pp. 8-10.

The *Gen. Plastic* factors may support denial of institution under §314(a) even where the previous proceedings involved a different petitioner. *Samsung Electronics Co., Ltd. v. Elm 3DS Innovations, LLC*, IPR2017-01305, Paper 11 (P.T.A.B. Oct. 17, 2017) (Ex. 2071) (Board denied institution of petition by Samsung under §314(a) on the basis of two earlier IPRs involving petitioners Micron and Hynix).

Samsung illustrates that §314(a) analysis using the *Gen. Plastic* factors is based on the totality of the factors, i.e., there is no requirement that every factor be met to warrant denial of institution. In *Samsung*, the Board found that factors 3

and 5 weighed in favor of exercising discretion to deny institution (with factor 3 weighing "strongly"), factor 1 weighed minimally against exercising discretion to deny, and factors 2, 4, 6, and 7 did not weigh significantly for or against exercising discretion to deny. Ex. 2071, pp. 18-23. Thus, the Board exercised its discretion to deny institution on the basis of only two factors that weighed against institution.

As set forth below, the *Gen. Plastic* factors weigh in favor of a denial of institution under §314(a) in the current proceeding. The Board has previously exercised its discretion to deny institution in situations similar to those in this proceeding. Ex. 2071; *NetApp Inc. v. Realtime Data LLC*, IPR2017-01660, Paper 17 (P.T.A.B. Jan. 25, 2018) (Ex. 2072).

Factor 1: whether the same petitioner previously filed a petition directed to the same claims of the same patent

Petitioner has not filed any previous petitions against the '632 Patent. However, Petitioner filed four previous petitions against the '632 Patent family, including two that relied on Whittemore in combination with other references. Exs. 2012, 2031, 2033, 2035. No claims were invalidated in any of those proceedings. Exs. 2032, 2034, 2082, 2083.

Petitioner has also filed two previous petitions against different Fontem patent families that relied on the same characterization of Brooks that Petitioner relies on here, namely that it discloses an "intimate contact" embodiment that

includes a "resistance heating component" and a separate "porous component." Ex. 2015, pp. 11, 20, 38-39, 46-47; Ex. 2054, pp. 19, 26-28. As discussed above at (VI)(A), institution was denied in the first of these (IPR2016-01270) on the basis that the "resistance heating component" and "porous substrate" of Brooks are not separate components. Exs. 1029, 2019. The second (IPR2017-01642) relied on the precise argument Petitioner advances here, namely that Brooks' "resistance heating component" and "porous substrate" are separate components and that it would have been obvious to a POSITA to replace the "resistance heating component" with the heater coil of Whittemore. The Board exercised its discretion to deny institution of that proceeding under §325(d). Ex. 2057.

Elsewhere, Petitioner has cited Brooks and/or Whittemore in at least four other petitions against Patent Owner. Exs. 2028, 2045, 2048, 2051.

The combination of Brooks and Whittemore was also asserted previously in a petition by a different petitioner against the parent '742 Patent (IPR2015-00859). Ex. 2005. Although factor 1 generally requires the same petitioner, the Board has held that a "high degree of similarity" between a later petition and earlier petitions brought by other parties "reduces the weight we accord this factor." Ex. 2071, p. 19. Here, there is a "high degree of similarity" between the Petition and the IPR2015-00859 petition, which asserted that it would have been obvious to a

POSITA to replace the heating wire of Brooks with the heater coil of Whittemore. Ex. 2005, pp. 35-39.

In view of Petitioner's previously denied petitions against Fontem patents based on the same references and arguments used here, the Board's previous rejection of Petitioner's characterization of Brooks, and the previous petition against the '632 Patent family by another petitioner based on the same references/arguments, factor 1 weighs in favor of denying institution.

Factor 2: whether at the time of filing of the first petition the petitioner knew of the prior art asserted in the second petition or should have known it

The Petition was filed on March 1, 2018. Prior to that date, Petitioner had filed at least eight previous petitions against Fontem patents that included grounds of unpatentability based on Brooks and/or Whittemore. Exs. 2012, 2015, 2028, 2035, 2045, 2048, 2051, 2054. These included two petitions filed on July 2, 2016, one of which cited Whittemore against the parent '742 Patent, and the other of which cited Brooks against the U.S. Patent No. 8,893,726 Patent. Exs. 2012, 2015. Thus, Petitioner was aware of Brooks and Whittemore at least by July 2, 2016, nearly two years before the filing date of the Petition. Moreover, Brooks was assigned to real party-in-interest R.J. Reynolds Tobacco Company, and cites to and discusses Whittemore in its background section. Petition, pp. 1-2; Ex. 1003, Title

Page, 1:57-61. Thus, real party-in-interest R.J. Reynolds Tobacco Company was aware of Brooks and Whittemore at least as early as Brooks' 1990 issue date.

Accordingly, factor 2 weighs in favor of denying institution.

Factor 3: whether at the time of filing of the second petition the petitioner already received the patent owner's preliminary response to the first petition or received the Board's decision on whether to institute review in the first petition

At the time of filing the Petition, Petitioner had access to numerous Patent Owner responses and Board decisions from IPRs in which Brooks and Whittemore were cited against the '632 Patent family and other Fontem patent families.

Petitioner filed a petition against U.S. Patent No. 9,370,205 ("'205 Patent") on June 26, 2017. Ex. 2054. That petition relied on the same argument Petitioner relies on here, namely that Brooks' "resistance heating component" and "porous substrate" are separate components and that it would have been obvious to a POSITA to replace the "resistance heating component" with the heater coil of Whittemore. Fontem filed a preliminary response to that petition, including expert testimony, on October 23, 2017, and the Board denied institution under §325(d) on January 16, 2018. Exs. 2056, 2057. By delaying filing of the current Petition until March 1, 2018, almost the last possible date to avoid the statutory bar imposed by

§315(b),[4] Petitioner had the opportunity to see Fontem's preliminary response and the Board's decision in that proceeding.

Petitioner also had the opportunity to see Patent Owner's response from IPR2015-01587, in which a different petitioner asserted the combination of Brooks and Whittemore against the parent '742 Patent. Ex. 2010.

In addition, Patent Owner has filed responses in two previous IPRs against a different Fontem patent family based on the combination of Brooks and Whittemore, and in 13 previous IPRs based on Brooks or Whittemore in combination with other references. Exs. 2002, 2003, 2006, 2008, 2013, 2017, 2020, 2022, 2024, 2026, 2029, 2037, 2046, 2049, 2052. The Board issued institution decisions in 11 of those 15 proceedings, and final written decisions in two. Exs. 1029, 2004, 2007, 2014, 2025, 2027, 2030, 2038, 2047, 2050, 2053, 2082, 2083.

Petitioner was aware of these earlier proceedings, and therefore of Fontem's responses and the Board's decisions, when filing the present Petition. Petition, pp. 3-5; Ex. 2058, pp. 5-6. Indeed, Petitioner explicitly tailors its arguments around the Board's earlier decisions. For example, in arguing that Brooks discloses a

[4] Patent Owner sued Petitioner for infringing the '632 Patent and other patents in the Middle District of North Carolina on March 1, 2017. Ex. 2062, ¶¶533-584.

"resistance heating component" and "porous substrate" as separate components, Petitioner addresses the Board's decision in IPR2016-01270 and attempts to distinguish its current characterization of Brooks from its previous efforts. Petition, pp. 11-12. This is consistent with Petitioner's previous acknowledgment that it has delayed filing its petitions until after it had the opportunity to preview Fontem's responses and the Board's decisions in proceedings involving other parties. *See, e.g.*, Ex. 2061, p. 5, fn 4 ("Reynolds intends to make a final decision of whether to file a petition for review of the '205 patent after Fontem files its preliminary patent owner response to Nu Mark's petition on November 25, 2016.").

In *Samsung*, the Board held that factor 3 weighed heavily in favor of denying institution because of the petitioner's access to earlier patent owner responses in other proceedings, as follows:

> In the circumstances of this case, we also look to additional considerations regarding what information was available to Petitioner… At the time of filing the instant Petition, Samsung also had the Patent Owner's Response and Patent Owner's expert testimony in the related proceedings. Not only did the Petitioner have such information, but Petitioner used such information in its Petition…. The availability of the Patent Owner's Response and Patent Owner's expert testimony from other proceedings also weighs strongly

> in favor of exercising our discretion, as does Petitioner's use of such information in its Petition.

Ex. 2071, pp. 20-21.

Here, factor 3 weighs in favor of denying institution because of Petitioner's access to Patent Owner's numerous responses and expert testimony, and its explicit reliance on previous Board decisions while preparing the Petition.

Factor 4: the length of time that elapsed between the time the petitioner learned of the prior art asserted in the second petition and the filing of the second petition

As set forth above with regard to factor 2, Petitioner was aware of Brooks and Whittemore no later than July 2, 2016, nearly two years before the filing date of the present Petition, and real party-in-interest R.J. Reynolds Tobacco Company was aware of both references by 1990 when Brooks issued.

Nonetheless, Petitioner waited until June 26, 2017, to file its first petition based on Brooks and Whittemore against a Fontem patent (IPR2017-01642), then waited nearly eight more months to file the present Petition on March 1, 2018. Ex. 2054. In view of these significant delays, factor 4 weighs in favor of denying institution.

Factor 5: whether the petitioner provides adequate explanation for the time elapsed between the filings of multiple petitions directed to the same claims of the same patent

Petitioner does not explain the delay between its awareness of Brooks and Whittemore by July 2, 2016, and its filing of the present Petition on March 1, 2018. The '632 Patent issued on October 4, 2016, and was first asserted against Petitioner in related litigation on March 1, 2017, so Petitioner's delay cannot be blamed on waiting for the '632 Patent to issue or to be asserted against it. Ex. 1001, Title Page; Ex. 2062, ¶¶533-584.

Petitioner's delays in filing the Petition are consistent with Petitioner's acknowledged strategy of waiting to preview Fontem responses and Board decisions before filing. *See, e.g.*, Ex. 2061, p. 5, fn 4. For example, Petitioner's delay in filing its first petition based on the combination of Brooks and Whittemore in IPR2017-01642 until June 26, 2017, gave Petitioner the opportunity to see Fontem's preliminary responses and the Board's decisions denying institution in IPR2016-01307 and IPR2016-01309, in which petitioner Nu Mark relied on the same references. Exs. 2024-2027. The additional delay between that filing and the present Petition gave Petitioner the opportunity to see another Fontem preliminary response and Board decision relating to the Brooks/Whittemore combination. Exs. 2056-2057.

"A central issue addressed by the *General Plastic* factors is balancing the equities between a petition and a patent owner when information is available from prior Board proceedings for a subsequent proceeding." Ex. 2071, pp. 17-18; citing *Gen. Plastic* at 15-19. Allowing Petitioner to take advantage of its repeated delays in petition filing would result in a serious imbalance in equity. Accordingly, factor 5 weighs in favor of denying institution.

Factor 6: the finite resources of the Board

The precise argument that Petitioner acknowledges "forms the basis for the unpatentability analysis in this petition," namely that Brooks discloses a so-called "intimate contact" embodiment that includes a "resistance heating component" separate from a "porous substrate," has been explicitly rejected by the Board in an earlier proceeding involving the same parties. Petition, pp. 11-12; Exs. 1029, 2019. The combination of Brooks and Whittemore has been asserted against the '632 Patent family and other Fontem patent families in at least eight previous petitions, including one by Petitioner, and not a single claim was invalidated in any of those proceedings. Exs. 2011, 2025, 2027, 2041-2044, 2057. Petitioner's attempt to re-litigate issues that have been repeatedly addressed and rejected is a waste of the Board's limited resources. Accordingly, factor 6 weighs in favor of denying institution.

Factor 7: the requirement under 35 U.S.C. §316(a)(11) to issue a final determination not later than 1 year after the date on which the Director notices institution of review

The Board recently issued guidance regarding the Supreme Court's decision in *SAS Institute Inc. v. Iancu*, 138 S. Ct. 1348 (2018).[5] The Board noted that for pending trials in which a panel has instituted trial on some (but not all) challenges raised in a petition, the panel may issue a supplemental order to institute on all challenges raised in the petition and then request additional briefing, discovery, or oral argument. Given this increase in the Board's workload, a final determination may well require more than a year after any institution decision in this proceeding. This factor therefore favors denial.

Totality of the factors

The totality of the *Gen. Plastic* factors in the present proceeding weigh in favor of denying institution under §314(a). Petitioner delayed filing the Petition until the last moment in order to see as many Patent Owner responses and Board decisions as possible and to sculpt its arguments accordingly. Petitioner has acknowledged that making adjustments based on Patent Owner's arguments and

[5] Guidance on the impact of SAS on AIA trial proceedings (Apr. 26, 2018), available at https://www.uspto.gov/patents-application-process/patent-trial-and-appeal-board/trials/guidance-impact-sas-aia-trial.

the Board's decisions is part of its IPR strategy. Ex. 2061, p. 5, fn 4. This approach wastes the Board's and the parties' time and resources. Ex. 2072, pp. 13-14. It is also unfair to Patent Owner. Congress intended IPRs to avoid repeated harassment of a patent owner through serial administrative actions. *Nautilus Hyosung Inc. v Diebold, Inc.*, IPR2017-00426, Paper 17 at 11-12 (P.T.A.B. June 22, 2017) (Ex. 2073) (citing H.R. Rep. No. 112-98, pt. 1, at 48 (2011) (noting that post-grant proceedings conducted under the AIA "are not to be used as tools for harassment or a means to prevent market entry through repeated litigation and administrative attacks on the validity of a patent" and "[d]oing so would frustrate the purpose of the section as providing quick and cost effective alternatives to litigation"). Patent Owner has already spent years defending the '632 Patent family and other patent families against IPR petitions based on the same references, and making Patent Owner go through this exercise again would be prejudicial. Ex. 2072, p. 14.

D. Brooks Does Not Disclose a Heating Wire Coil Wound on a Porous Component

The challenged claims recite a "heating wire coil wound on a porous component," i.e., coiled on a porous component. Brooks does not teach the use of a heating wire coil in its disclosed device. Ex. 2001, ¶¶43-44. Instead, the only reference to coils is in the Background section, where Brooks disparages prior art

devices, including several that include wire coils, as commercial failures and incapable of providing the user with a smoking sensation. *See, e.g.*, Ex. 1003, 3:39-55 (disparaging the prior art); 1:57-61, 1:62-2:6, 2:36-43, 2:67-3:14 (discussing wire coil devices of Whittemore, U.S. Patent No. 2,104,266, West German Patent Appl. 2,653,133, and PCT Publ. No. WO86/02528, respectively); Ex. 2001, ¶43.

Nonetheless, Petitioner asserts that Brooks discloses the use of heating wire coils. Petition, pp. 24-25, 53-54. Petitioner cites the annotated version of Brooks' Fig. 5 below, and asserts that the "heating element" highlighted in red is a coil. Petition, p. 24-25, 53-54; Ex. 1002, ¶55.

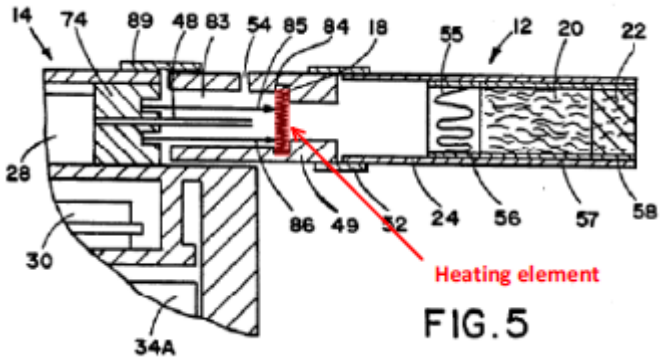


FIG. 5

However, Brooks explicitly states that the heating element in Fig. 5 is *not* a wire coil: "[i]n this embodiment, the heating element 18 is a circular disc or pad, preferably formed from an American Kynol carbon felt." Ex. 1003, 11:54-58.

Petitioner also cites U.S. Patent Appl. No. 2004/0234916 ("Hale," Ex. 1014) for its reference to an "electrical resistance coil" in the '901 Patent (Ex. 1015), which Petitioner asserts is "substantially identical to the Brooks patent." Petition, pp. 24, 54; Ex. 1002, ¶56. Hale has different inventors and a different assignee than the '901 Patent (and Brooks), so a POSITA would have no reason to look to Hale to interpret Brooks. Further, Hale cites the '901 Patent and two other patents for its statement "[c]igarette holders and pipe bowls having an electrical resistance coil to generate heat in order to volatilize tobacco flavors have been described," but it does not cite any specific disclosure from these references. Ex. 1014, ¶0004. Like Brooks, the '901 Patent mentions coils only in the Background section, and thus a POSITA would assume that is what Hale is referring to. Ex. 2001, ¶44.

E. A POSITA Could Not Wind Brooks' "Resistance Heating Component" On Brooks' "Porous Substrate" Because They Are Not Separate Components

To meet the claim element of "a heating wire coil wound on a porous component," Petitioner and Sturges assert that it would have been obvious to a POSITA to coil Brooks' "resistance heating component" around the "porous substrate" in view of Whittemore. Petition, pp. 25-29, 55-56; Ex. 1002, ¶¶57-67, 74.

Petitioner and Sturges' proposed combination is predicated on the assertion that Brooks discloses a so-called "intimate contact" embodiment in which the

"resistance heating component" and "porous substrate" are separate components. Petition, pp. 11-12, 18-21, 24-29, 54. As discussed above at (VI)(A), Petitioner advanced this exact argument in IPR2016-01270, and the Board rejected it: "Brooks's lone statement that '*[o]ther suitable heating elements* include . . . porous substrates in intimate contact with resistance heating components' ([Ex. 1003], 7:65-8:3 (emphasis added)) does not persuade us that 'in intimate contact' discloses that the porous substrate is separate from the resistance heating components of the heating element." Ex. 1029, p. 13; *see also* Ex. 2019, p. 4.

Petitioner asserts that the Board's earlier decision from IPR2016-01270 should not apply here because "the Board did not have the evidence presented here," namely "Dr. Sturges' testimony expressly explaining that a PHOSITA would have understood that Brooks' 'porous substrates in intimate contact with resistance heating components' are distinct structures." Petition, pp. 11-12, citing Ex. 1002, ¶¶44-46, 74. However, that is *precisely* the evidence the Board had in IPR2016-01270. In that proceeding, Petitioner also relied on the testimony of Sturges, who argued at length that Brooks disclosed an "intimate contact" embodiment with a "resistance heating component" separate from a "porous substrate." Ex. 2016, ¶¶38-48, 60-83, 85-91; *see also* Ex. 2015, pp. 20, 38.

Sturges' testimony here largely recapitulates his testimony from IPR2016-01270 on this point. *See, e.g.*, Ex. 1002, ¶¶44-46, 51, 55-67, 74. Indeed, Petitioner cites only four paragraphs of Sturges' declaration in support of its assertion regarding alleged new evidence. Petition, p. 11; citing Ex. 1002, ¶¶44-46, 74. As detailed below, nothing in those four paragraphs changes the disclosure of Brooks or warrants a different interpretation than the Board reached in IPR2016-01270. Notably, the statements made in these paragraphs were also presented in Sturges' declaration in IPR2017-01642, where the Board exercised its discretion to deny institution under §325(d). Ex. 2054, pp.19-22, citing Ex. 2055, ¶¶49-51, 61-63; Ex. 2057.

First, Petitioner and Sturges note that Whittemore is cited in the Background section of Brooks, and assert that Whittemore provides "an example of a resistance heating component (*i.e.,* filament coil) in intimate contact with a separate porous substrate (*i.e.,* the wick)." Petition, pp. 11, 18; Ex. 1002, ¶¶45, 74, citing Ex. 1003, 1:57-61. However, Brooks' discussion of Whittemore is limited to its Background discussion of prior art devices, some of which contain heater coils. Ex. 1003, 1:57-61 (discussing Whittemore), 1:62-2:6 (discussing U.S. Patent No. 2,104,266), 2:36-43 (discussing West German Patent Appl. 2,653,133), 2:67-3:14 (discussing PCT Publ. No. WO86/02528); Ex. 2001, ¶43. Brooks does not mention these

references outside the Background section, nor does it discuss the use of heater coils in its disclosed device. Ex. 2001, ¶43. A POSITA would have no reason to read disparaged prior art elements from the Background section into Brooks' disclosed embodiments. Ex. 2001, ¶44.

Next, Petitioner and Sturges cite a dictionary definition of "contact" as a "union or junction of two surfaces," and uses this definition to infer that "intimate contact" between Brooks' "resistance heating component" and "porous substrate" requires them to be separate components because "something cannot be in (intimate) contact with itself." Petition, pp. 11, 18-19; Ex. 1002, ¶45, citing Ex. 1013. Citing the dictionary does not make this argument new. In IPR2016-01270, Petitioner stated "[o]f course, something cannot be in intimate contact with itself, and thus Brooks expressly taught that the porous substrates could be separate from the resistance heating components, provided the substrates and the heating component are in intimate contact." Ex. 2015, p. 11.

Petitioner and Sturges go on to argue that Brooks' claims distinguish between the preferred embodiment and the alleged "intimate contact" embodiment because claims 53, 104, and 131 require "an electrical heating element" and "an aerosol forming substance" without a requirement that the aerosol forming substance be carried by the heating element, whereas dependent claims 57, 105,

and 132 add the limitation "aerosol forming substance is carried by the heating element." Petition, pp. 11, 20-21; Ex. 1002, ¶46, citing Ex. 1003, claims 53, 57, 104, 105, 131, 132. With regard to Sturges' testimony, no basis is provided for Sturges' knowledge or ability to opine on the legal topic of claim differentiation. Regardless, claim differentiation cannot change the disclosure of Brooks. "Claim language must always be read in view of the written description…and any presumption created by the doctrine of claim differentiation 'will be overcome by contrary construction dictated by the written description…'" *Retractable Technol., Inc. v. Becton, Dickinson & Co.*, 653 F.3d 1296, 1305 (Fed. Cir. 2011). "[C]laim differentiation does not serve to broaden claims beyond their meaning in light of the patent as a whole, and it cannot override clear statements of claim scope found in the specification." *Poly-America L.P. v. API Indus., Inc.*, 839 F.3d 1131, 1137 (Fed. Cir. 2016). Claim differentiation cannot overcome the clear and consistent teaching in Brooks of liquid being stored only in the porous atomizer.

Finally, Petitioner and Sturges state that a "porous substrate" separate from the "resistance heating component" is consistent with Brooks' teaching "that the aerosol forming substance can be located either 'on the resistance heating element or elsewhere in the article.'" Petition, pp. 19-20, 41; Ex. 1002, ¶46, citing Ex. 1003, 6:45-52. Petitioner and Sturges both omit a portion of the quoted sentence,

which actually states "aerosol forming substances *and/or tobacco flavor substances* located on the resistance element or elsewhere in the article." Ex. 1003, 6:45-52 (emphasis added). Brooks does not disclose any embodiment in which liquid is stored outside of the heating element, but it does disclose that tobacco flavor substances can be located outside the heating element. *See, e.g.*, Ex. 1003, 10:49-53; Ex. 2001, ¶64. In view of the specification as a whole and its repeated teaching that liquid is stored on the heating element, a POSITA would understand that "elsewhere in the article" referred to tobacco flavor substances, not aerosol forming substances. Ex. 2001, ¶¶39, 62.

Since, as the Board has previously determined, Brooks' "resistance heating component" and "porous substrates" are not separate components, a POSITA could not wind the "resistance heating component" on the "porous substrates" in view of Whittemore in the manner proposed by Petitioner. Ex. 2001, ¶46.

In the absence of a separate heating component and porous substrate, Petitioner's proposed combination falls apart. Brooks' "resistance heating component" is intimately interconnected with Brooks' "porous substrate;" it is not a separate component that can be wound on the "porous substrate" in the manner proposed by Petitioner. Ex. 2001, ¶37.

F. A POSITA Would Not Have Been Motivated to Use a Heating Wire Coil In Brooks' Device

Even if the "resistance heating component" of Brooks were a separate component from the "porous substrate," a POSITA would not have been motivated to configure it as a heating wire coil. Ex. 2001, ¶47.

As discussed below at (VI)(G), Brooks discloses directly impregnating its heater with liquid, thereby eliminating the need for a separate liquid source. Ex. 2001, ¶55. This is consistent with the disposable nature of the cigarette portion of the Brooks device, which is designed to deliver 6-10 puffs and then be removed and discarded. Ex. 2001, ¶¶50, 63. Due to its lower surface area, a wire coil would not be more efficient than, and would in fact be inferior to, the heating elements actually disclosed in Brooks for use in Brooks' disposable, single-use device. Ex. 2001, ¶50. A POSITA would recognize that heating wire coils provide a way to get more energy throughput in a small space, but this does not guarantee efficiency. Ex. 2001, ¶50. A heating wire coil wrapped around or in contact with a porous body has only line contact with the porous body, resulting in a very limited total contact area and thus less efficient heat transfer. Ex. 2001, ¶50. Brooks discloses that the resistance heating element typically has a surface area greater than 1 m^2/g, and most preferably a surface area greater than about 1,000 m^2g. Ex. 1003, 4:12-20. A POSITA would recognize that a wire heater could not

achieve this type of surface area. Ex. 2001, ¶50. Brooks actually contrasts its desired surface area with that of U.S. Patent No. 4,735,217 ("Gerth"): "[i]n contrast, the surface area of the Nichrome metal resistance element [i.e., a wire heater] of Gerth et al is believed to be about 0.01 m^2g." Ex. 1003, 4:18-22.

A POSITA also would not have been motivated to incorporate a heating wire coil into the Brooks device because Brooks already discloses specific materials, including porous heaters and felts, that are consistent with Brooks' focus on high surface area heating elements designed for direct impregnation of liquid without a separate liquid source. Ex. 2001, ¶51. When Brooks mentions the use of metal wires (Petition, pp. 18, 24, 53), the wires are *porous*, consistent with Brooks' repeated characterization of its heating elements as porous materials designed to be directly impregnated with liquid. *See, e.g.*, Ex. 1003, 7:66; Ex. 2001, ¶48.

Petitioner and Sturges cite U.S. Patent Nos. 5,743,251 ("Howell;" Ex. 1010) and 3,234,357 ("Seuthe;" Ex. 1012) to support the argument that heating coils were known to promote efficient heat transfer. Petition, p. 27; Ex. 1002, ¶64. However, the cited passages do not support this assertion. The cited passage of Howell states that "[t]he wire was wrapped in a fashion that produced close, tight coils to insure good heat transfer," while the cited passage of Seuthe states "[i]n order to obtain a stronger heating effect, wire in the upper region is wound in a tighter coiled

manner than the lower portion." Ex. 1010, 11:19-21; Ex. 1012, 4:75-5:2. In both cases, the references are simply teaching that wire coils in which the coils are tightly spaced provide better heat transfer than those with less tightly spaced coils, not that coils are more efficient than other configurations. Ex. 2001, ¶51. There is nothing in the quoted statements, nor in the references as a whole, to suggest that wire coils are superior to, e.g., more efficient than, the heating elements disclosed by Brooks. Ex. 2001, ¶50.

Petitioner and Sturges cite various references for the proposition that winding heating coils around a porous component had been known for decades. Petition, p. 26; Ex. 1002, ¶¶37, 61. These references are from 1914 (U.S. Patent No. 1,084,304; Ex. 1016), 1936 (Whittemore), 1949 (U.S. Patent No. 2,461,664; Ex. 1011), and 1966 (Seuthe), meaning they all pre-date the filing of Brooks by at least 22 years. The fact that heating coils were known yet were only discussed in the Background section of Brooks, in the context of prior art devices, confirms that Brooks (Petitioner) did not teach or suggest that a coil could be used in its disclosed device. This would lead a POSITA to conclude that heater coils were known but did not meet the criteria set forth by Brooks for its heating elements, namely the ability to "heat and cool rapidly, and thus provide for the efficient use of energy." Ex. 1003, 7:34-38. Ex. 2001, ¶53. It is not enough for Petitioner to

say that heater coils were known at the time of the invention. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 401 (2007) ("A patent composed of several elements is not proved obvious merely by demonstrating that each element was, independently, known in the prior art.").

As an alternative to adapting Brooks' "resistance heating component" to be a heater coil wound on the "porous substrate," Petitioner and Sturges make a cursory argument that it would be obvious to substitute Brooks' "resistance heating component" *and* "porous substrate" with the heating wire/wick combination of Whittemore. Petition, p. 28; Ex. 1002, ¶63. However, just as a POSITA would have no credible motivation for incorporating a heater coil into Brooks, he or she would likewise have no credible motivation for incorporating Whittemore's heating wire/wick combination. Ex. 2001, ¶54. Whittemore's wick is designed to transfer liquid to a wire. Ex. 2001, ¶55. As discussed below at (VI)(G), the device of Brooks does not contain a liquid storage component separate from the atomizer; instead, liquid is impregnated directly into the atomizer. Accordingly, a POSITA would have no reason to incorporate a wick for transferring liquid to into Brooks. Ex. 2001, ¶54. Further, unlike the "porous substrate" of Brooks, Whittemore's wick is not designed to hold liquid over time. If Whittemore's wick were

incorporated into Brooks, it would dry out and there would be no liquid available for atomization. Ex. 2001, ¶55.

G. Brooks Does Not Teach or Suggest a Liquid Storage Component Separate From the Atomizer Assembly

The challenged claims recite a "liquid storage component" as a separate component from the atomizer assembly and its atomization chamber, heating wire coil, and porous component. Ex. 2001, ¶¶56-57. For example, claim 14 recites "an atomizer assembly within an elongated cylindrical housing," "the atomizer assembly including an atomization chamber" and "a heating wire coil wound on a porous component" and "in an air flow path." Separately, claim 14 recites "a liquid storage component in the elongated cylindrical housing." This is consistent with the '632 Patent specification, which teaches the liquid storage component as a component for storing liquid that will eventually be transferred to the atomizer for aerosolization. Ex. 2001, ¶57; Ex. 1003, 4:7-11, 4:21-25, 4:62-65.

Brooks does not teach or suggest liquid storage outside of the atomizer. Ex. 2001, ¶58. Rather, liquid is impregnated directly into the heating element. Based on the disclosure of Brooks, a POSITA would understand that the atomizer in Brooks includes this "heating element." Ex. 2001, ¶58. For example, Brooks describes controlling the temperature of the heating element to achieve "a desired temperature range for volatilization of the aerosol former and the tobacco flavor

substances," and notes that its heating elements "are capable of holding and efficiently releasing relatively large quantities of aerosol forming substances and tobacco flavor materials." Ex. 1003, Abstract, 4:25-41, 5:1-5.

Brooks consistently describes direct impregnation of its atomizer with liquid. Ex. 2001, ¶¶37, 48. For example, Brooks states "[p]referably, such porous heating elements are impregnated with liquid aerosol forming substances…. Such heating elements are particularly advantageous in that they are capable of holding and efficiently releasing relatively large quantities of liquid aerosol forming substances and tobacco flavor materials." Ex. 1003, 4:22-29. Later, Brooks states "[p]referably, the heating element 18 is impregnated with or otherwise carries the aerosol forming substance in order that the aerosol forming substance is in a heat exchange relationship with the electrical heating element." Ex. 1003, 8:4-8. Working examples 1, 3, and 4 all refer to impregnating the heating element with liquid aerosol forming substance. Ex. 1003, 17:1-9, 19:16-22, 20:14-22; Ex. 2001, ¶59.

Brooks presents impregnation of the heating element with liquid as a key feature distinguishing its disclosed device from the prior art. For example, in discussing U.S. Patent No. 4,735,217 ("Gerth"), Brooks notes that "it is believed that it would not be possible to coat a Nichrome heating element [of Gerth]… with

enough vaporizable liquid material to deliver sufficient volatile material to the user, over the 6 to 10 puff life of a typical cigarette." Ex. 1003, 3:30-34. Later, Brooks distinguishes its device from Gerth:

> Preferably, the heating element is a fibrous carbon material, most preferably having a surface area greater than about 1,000 m^2g. (In contrast, the surface area of the Nichrome metal resistance element of Gerth et al is believed to be about 0.01 m^2g). Preferably, such porous heating elements are impregnated with liquid aerosol forming substances…. Such heating elements are particularly advantageous in that they are capable of holding and efficiently releasing relatively large quantities of liquid aerosol forming substances and tobacco flavor materials. For example, such heating elements can carry enough aerosol forming substances to provide aerosol for 6 to 10 puffs, or more.

Ex. 1003, 4:18-31.

Incorporation of a liquid storage component separate from the atomizer is at odds with Brooks' teaching of its smoking articles as comprising a disposable component capable of delivering a limited number of puffs. Ex. 2001, ¶63. For example, Brooks states "[p]referred smoking articles of the invention can deliver such aerosol, preferably in visible form, for a plurality of puffs, preferably at least about 6 puffs, more preferably at least about 10 puffs, under such conditions." Ex.

1003, 6:32-36. Later, Brooks states "[t]his process continues, puff after puff, normally for at least about 6 puffs, until aerosol delivery drops below the level desired by the user. Then, the user can remove the cigarette 12 from the control pack 14, and dispose of the cigarette." Ex. 1003, 10:66-11:2. The working examples show the disclosed devices delivering 10 puffs (Examples 1, 3, 5, and 6) or 12 puffs (Example 4). Ex. 1003, 18:28-29, 19:64-66, 21:39-48, 22:38-40. For a disposable device designed for such limited usage, there is no need for a separate liquid storage component – the atomizer itself is impregnated with sufficient liquid. Ex. 2001, ¶55.

Petitioner and Sturges assert that Brooks "discloses two liquid storage components." Petition, p. 41; Ex. 1002, ¶71. For the first, Petitioner and Sturges rely on Brooks' statement that aerosol forming substances are "located on the resistance heating element or elsewhere in the article," and argues that a POSITA would have interpreted "elsewhere in the article" to mean "elsewhere in the disposable portion 12 (*i.e.*, the atomizer assembly) because that is the portion that is replaced every 6-10 puffs." Petition, p. 41, citing Ex. 1003, 6:45-52, 17:6-9; Ex. 1002, ¶71.

As discussed above at (IV)(E), Petitioner's quotation of Brooks is misleading. The cited passage actually states "aerosol forming substances *and/or*

tobacco flavor substances located on the resistance heating element or elsewhere in the article." Ex. 1002, 6:45-52 (emphasis added). In other words, "elsewhere on the article" does not refer to "aerosol forming substances," but instead to "aerosol forming substances and/or tobacco flavor substances." As discussed at length above, Brooks does not disclose any embodiment in which liquid is stored outside of the heating element, i.e., outside of the atomizer. Ex. 2001, ¶55. Brooks does, however, disclose that tobacco flavor substances can be located outside the heating element. *See, e.g.*, Ex. 1002, 10:49-53. Accordingly, rather than twisting this sentence of Brooks into an embodiment at odds with the specification, a POSITA would interpret "elsewhere in the article" as referring to tobacco flavor substances. Ex. 2001, ¶62.

For the second alleged liquid storage component of Brooks, Petitioner and Sturges point to the tobacco roll/charge of Brooks which, according to Petitioner "includes various solutions, such as '[t]obacco extracts; tobacco flavor modifiers such as levulinic acid; and other flavoring agents such as menthol, vanillin, chocolate, licorice, and the like.'" Petition, p. 42; Ex. 1002, ¶71; citing Ex. 1003, 9:1-15. Petitioner argues that a POSITA would have known that this tobacco roll/charge would contain liquid solutions. Petition, p. 42. Petitioner and Sturges further rely on Ex. 1033 and Ex. 1034 to demonstrate that reconstituted tobacco

and tobacco extracts are liquid. Petition, p. 42; Ex. 1002, ¶71. However, the specific extracts disclosed by Brooks, namely "spray dried tobacco extract" and "freeze dried tobacco extract," are not liquids. Ex. 1003, 8:11-12. Likewise, Petitioner's own U.S. Patent No. 5,327,917 describes various solid forms of reconstituted tobacco materials, such as sheet-like reconstituted tobacco and reconstituted tobacco formed in rods. Ex. 2081, 2:1-10. Petitioner and Sturges have not established that any ingredient of tobacco charge 20 must be in a liquid form. Ex. 2001, ¶¶65-66.

Contrary to Petitioner's characterization, the cited passages of Brooks do not reference "various solutions" when describing the tobacco roll. Nothing in the quoted passage requires any of the recited components (e.g., tobacco extracts, tobacco flavor modifiers, other flavoring agents) to be liquid. Ex. 2001, ¶65. Even if one or more of these agents were in liquid form prior to incorporation into the tobacco roll, they are not stored as liquid once they have been blended with the tobacco. Ex. 2001, ¶65. Instead, the ingredients become a part of the solid tobacco material. Ex. 2001, ¶65. This is illustrated by the fact that the tobacco charge is preferably "overwrapped with a paper overwrap." Ex. 1003, 9:6-8. A POSITA would recognize that a paper overwrap would not be compatible with storing a solution in liquid form. Ex. 2001, ¶65. Finally, it should be noted that

Petitioner and Sturges have addressed liquid storage in Brooks on at least two previous occasions. In IPR2016-01270, Brooks' porous substrate was identified as a "liquid storage body," and in IPR2017-01642 Brooks' porous heating element or porous substrate was identified as a "liquid supply." Ex. 2015, pp. 20-21, 38-39; Ex. 2054, p. 39. On neither occasion was the tobacco roll/charge identified as a store of liquid. This once again illustrates the advantage Petitioner has obtained by spacing out its petitions over several years, namely the ability to continually mine new disclosure from the same reference on an as-needed basis.

H. Brooks Does Not Teach or Suggest a Battery Assembly in an Elongated Cylindrical Housing

The challenged claims recite an "elongated cylindrical housing" that contains a "battery assembly" and an "atomizer assembly." As illustrated in Fig. 1 of the '632 Patent, below, having both assemblies within an elongated cylindrical housing results in a device with a cylindrical shape similar to a traditional cigarette. Ex. 2001, ¶69.

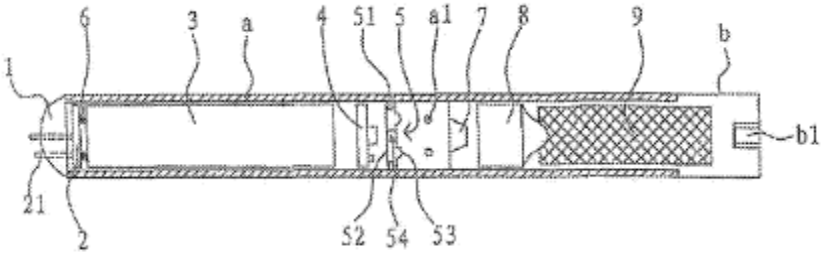


Figure 1

Brooks does not teach or suggest an elongated cylindrical housing containing a battery assembly and an atomizer assembly, nor does it teach or suggest an assembled device having a cylindrical shape similar to a traditional cigarette. Brooks mentions devices having a cigarette or cigar shape in its Background discussion of prior art devices, but does not mention this characteristic when discussing its own disclosed device. Ex. 1003, 2:29-30, 3:15-16. All the illustrated embodiments of Brooks show the reusable controller component shaped like a handle, the bowl of a pipe, or a power pack attached to the disposable component via a cord, not a tubular cigarette-shaped component. Ex. 1003, Figs. 1-8.

Brooks states that "reusable controller can be in the form of a pipe, a reusable cigarette holder, or a hand-held unit or other portable form into which the disposable portion can be inserted." Ex. 1003, 4:47-49. Petitioner argues that "[a] PHOSITA would have readily understood that a 'cigarette holder' as disclosed in Brooks is an elongated cylindrical structure with an extended open portion for receiving a cigarette." Petition, pp. 16-17, 31-32; Ex. 1002, ¶70. Accordingly, Petitioner concludes "when the controller housing takes on the form of a cigarette holder it will be an elongated cylindrical housing." Petition, pp. 17, 33.

Brooks makes it clear that the reusable controller is the "holder" that it refers to:

> The *reusable controller 14* includes a case 26 or outer housing which *provides a convenient and aesthetic holder* for the user. The outer housing 26 can have a variety of shapes and can be manufactured from plastic, metal, or the like. Controller 14 includes an insulative receptacle 44 which includes plug-in connectors 42, 43 for engagement with prongs 38, 39 of plug 16. Receptacle 44 also includes tube 48 which is inserted into passageway 46 of plug 16 to be in airflow communication with the internal region of the cigarette. The other end of tube 48 is in airflow communication with pressure sensing switch 28, so that changes in air pressure which occur within the cigarette during draw can be sensed by the switch.

Ex. 1003, 9:37-50 (emphasis added).

Brooks provides numerous illustrations of its disclosed device, but none of those present a reusable controller having an elongated cylindrical configuration. For example, Fig. 3 of Brooks shows an embodiment configured to hold a tubular disposable component:

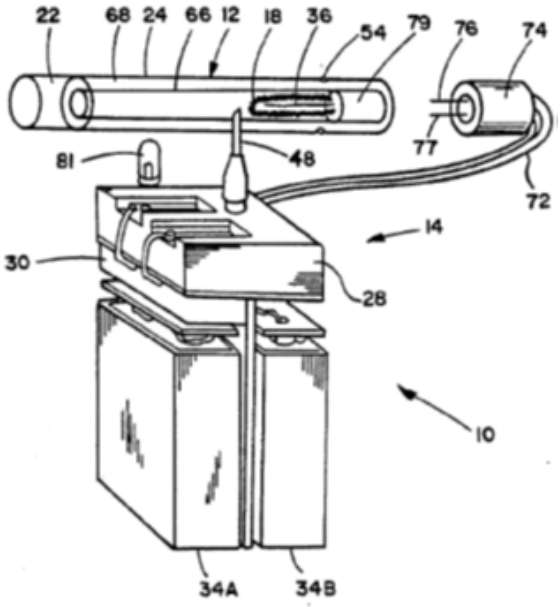


FIG. 3

In this embodiment, the reusable controller is functioning as a "cigarette holder": "[w]ith such a design, it is possible for the user to place the control pack in a shirt pocket or on a table, and *hold the cigarette* in a normal fashion." Ex. 1003, 11:31-35 (emphasis added). The reusable controller in this embodiment does not have an elongated cylindrical shape, and the assembled device does not resemble a traditional cigarette.

Petitioner and Sturges cite several references to support their assertion that cigarette holders are necessarily cylindrical, including U.S. Patent No. 3,292,635 ("Kolodny;" Ex. 1019), U.S. Patent No. 3,685,521 ("Dock;" Ex. 1020), and U.S. Patent No. 6,894,841 ("Voges;" Ex. 1005). Petition, pp. 16-17, 31-32; Ex. 1002, ¶70. However, Petitioner and Sturges provide no motivation for a POSITA to look

to these references in combining the devices of Brooks and Whittemore, nor do they provide any evidence that the cylindrical cigarette holders disclosed in these references were indicative of the general knowledge in the art.

VII. CONCLUSION

For the reasons discussed above, Patent Owner requests that the Board deny the Petition.

Respectfully submitted,

Date: July 18, 2018

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CERTIFICATE OF COMPLIANCE

The undersigned certifies that this brief complies with the type-volume limitations of 37 CFR § 42.24. This brief contains 13,087 words as calculated by the "Word Count" feature of Microsoft Word 2010, the word processing program used to create it.

Date: July 18, 2018

/Amy Candeloro/
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CERTIFICATE OF SERVICE

The undersigned hereby certifies that service on Petitioner was made as follows, in accordance with 37 CFR 42.6(e):

Date of service: July 18, 2018

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

Document(s) served: **PATENT OWNER PRELIMINARY RESPONSE TO PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 9,456,632**

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