

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

R.J. Reynolds Vapor Company,

Petitioner

v.

Fontem Holdings 1 B.V.

Patent Owner

U.S. Patent No.: 8,365,742

Issue Date: Feb. 5, 2013

Title: Aerosol Electronic Cigarette

Inter Partes Review No. IPR2016-01268

**DECLARATION OF DR. ROBERT H. STURGES
REGARDING U.S. PATENT NO. 8,365,742**

Philip Morris Products, S.A.
Exhibit 1041
PMP v. RAI
IPR2020-01602

Ex. 1041-001

**R.J. Reynolds Vapor
IPR2016-01268**

**R.J. Reynolds Vapor v. Fontem
Exhibit 1015-00001**

TABLE OF CONTENTS

	Page
I. INTRODUCTION	1
A. Engagement	1
B. Background and Qualifications	1
C. Compensation and Prior Testimony	2
D. Information Considered.....	3
II. LEGAL STANDARDS FOR PATENTABILITY	3
III. OVERVIEW AND BACKGROUND OF THE '742 PATENT	9
A. Overview of the '742 Patent.....	9
B. Person of Ordinary Skill in the Art	12
IV. CLAIM CONSTRUCTION	13
V. DESCRIPTION OF THE PRIOR ART THAT FORMS THE BASIS FOR UNPATENTABILITY	15
A. Hon '043 (Ex. 1002; Ex. 1003).....	15
B. Whittemore (Ex. 1004).....	21
VI. CLAIMS 2 AND 3 OF THE '742 PATENT ARE OBVIOUS.....	23
A. Motivation For Combining Hon '043 With Whittemore	23
VII. CONCLUSION.....	40

I. INTRODUCTION

A. Engagement

1. I have been retained by the law firm of Brinks Gilson & Lione on behalf of R.J. Reynolds Vapor Company to provide this Declaration concerning the technical subject matter relevant to the *inter partes* review petition concerning U.S. Patent No. U.S. Patent No. 8,365,742 (“the ‘742 patent”; Exhibit 1001).¹ I have been asked to render an opinion regarding the validity of claims 2 and 3 (the “challenged claims”).

B. Background and Qualifications

2. I am currently a Professor in the Departments of Mechanical and Industrial Systems Engineering at Virginia Polytechnic Institute (“Virginia Tech”). From 1987 to 1997, I was first an Assistant Professor and then later an Associate Professor in the Mechanical Engineering Department at Carnegie Mellon University. I have a combined Bachelor of Science and Master of Science degree in mechanical engineering from M.I.T. and a Ph.D. in mechanical engineering from Carnegie Mellon University.

3. In my past work, I have extensively studied and designed various fluid power systems, including a robotic arm and robotic end effectors. In the latter, I

¹ I refer to exhibit numbers that correspond to those I understand will be submitted with the Petition for *Inter Partes* Review.

applied fluid “resistors” that rely on porous media to provide resistance to flow. I have also applied heat transfer fundamentals to design and build variations of commercial steam engines used in my undergraduate labs at Carnegie Mellon University and my graduate course in Sustainability at Virginia Tech. In addition, I have taught undergraduate courses focused on fundamental mechanics and the conservation of energy, including basic principles of fluid flow and heat transfer.

4. Based on my background, experience, education and professional activities, I consider myself an expert in the fields of mechanical design, mechatronics, and manufacturing, including systems that employ heat, mass and fluid transfer.

5. My Curriculum Vitae, including my publications and patents, is submitted herewith in Appendix A.

C. Compensation and Prior Testimony

6. I am being compensated at a rate of \$400 per hour for my study and time in this matter. I am also being reimbursed for reasonable and customary expenses associated with my work and time in this investigation. My compensation is not contingent on the outcome of this matter or the specifics of my testimony.

7. The list attached at Appendix B identifies my past expert engagements.

D. Information Considered

8. My opinions are based on my years of education, research, and experience, as well as my investigation and study of relevant materials. In forming my opinions, I have considered, among other things, the '742 patent and its prosecution history, as well as the record of the two prior IPRs involving the '742 patent (IPR2015-00859 and IPR2015-01587), in addition to the prior art and other materials referred to herein.

9. I may rely upon these materials and/or additional materials to rebut arguments raised by the patent owner.

10. I reserve the right to supplement this Declaration in response to additional evidence that may come to light.

II. LEGAL STANDARDS FOR PATENTABILITY

11. In expressing my opinions and considering the subject matter of the claims of the '742 patent, I am relying upon certain basic legal principles that counsel has explained to me.

12. It is my understanding that, to anticipate a claim under 35 U.S.C. § 102, a prior art reference must teach every limitation of the claim.

13. It is also my understanding that a claimed invention is unpatentable under 35 U.S.C. § 103 as being obvious if the differences between the invention and the prior art are such that the subject matter as a whole would have been

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.