### UNITED STATES PATENT AND TRADEMARK OFFICE

### BEFORE THE PATENT TRIAL AND APPEAL BOARD

## UMICORE AG & CO. KG,

### Petitioner

Patent No. 9,039,982 Issue Date: May 26, 2015 Title: CATALYZED SCR FILTER AND EMISSION TREATMENT SYSTEM

## **DECLARATION OF MAGDI KHAIR**

Case No. IPR2016-00613



## **Table of Contents**

| I.   | BAC                                   | ACKGROUND AND QUALIFICATIONS5                         |  |    |  |  |  |
|------|---------------------------------------|---|--|----|--|--|--|
| II.  | ASSI                                  | SIGNMENT AND MATERIALS REVIEWED9                      |  |    |  |  |  |
| III. | SUM                                   | MMARY OF THE '982 PATENT11                            |  |    |  |  |  |
| IV.  | THE                                   | THE CLAIMS OF THE '982 PATENT                         |  |    |  |  |  |
|      | A.                                    | Over  | view   | 14 |  |  |  |
|      | B.                                    | Clain   | n Construction:  | 16 |  |  |  |
| V.   | THE '982 PATENT'S PROSECUTION HISTORY |   |  |    |  |  |  |
|      | A.                                    | Origi   | nal Prosecution  | 18 |  |  |  |
|      | B.                                    | Previ   | ous Inter Partes Review  | 18 |  |  |  |
| VI.  | UNPATENTABILITY ANALYSIS              |   |  |    |  |  |  |
|      | A.                                    | Person of Ordinary Skill in the Art                   |  |    |  |  |  |
|      | B.                                    | Scop  | e, Content, and Disclosures of the Prior Art                             | 22 |  |  |  |
|      |                                       | 1.  | Muraki   | 23 |  |  |  |
|      |                                       | 2.  | Taoka  | 25 |  |  |  |
|      |                                       | 3.  | Joy  | 27 |  |  |  |
|      |                                       | 4.  | Speronello   | 28 |  |  |  |
|      | C.                                    | Muraki and Taoka Render Claims 22, 23, and 27 Obvious |  | 29 |  |  |  |
|      |                                       | 1.  | The limitations of claim 22 are all disclosed by the prior art           | 30 |  |  |  |
|      |                                       | 2.  | The limitations of claims 23 are all disclosed by the prior art          | 33 |  |  |  |
|      |                                       | 3.  | The limitations of claim 27 are all disclosed by the prior art           | 34 |  |  |  |
|      |                                       | 4.  | It would have been obvious to combine the teachings of Muraki and Taoka  | 35 |  |  |  |
|      | D.                                    |   | ns 24, 25, and 26 obvious over Muraki and Taoka in er view of Sperenollo | 37 |  |  |  |



|    | 1.  | Muraki, Taoka, and Speronello disclose and render obvious all the limitations of claim 24                     | 37 |  |  |
|----|---|---|----|--|--|
|    | 2.  | Muraki, Taoka, and Speronello disclose and render obvious all the limitations of claim 25                     | 38 |  |  |
|    | 3.  | Muraki, Taoka, and Speronello disclose and render obvious all the limitations of claim 26                     | 39 |  |  |
|    | 4.  | It would have been obvious to combine the teachings of Muraki, Taoka, and Speronello                          | 40 |  |  |
| E. |   | aki, Taoka, and Joy Render Claims 1-5 and 14-17, 19 ous   | 43 |  |  |
|    | 1.  | Muraki, Taoka, and Joy disclose and render obvious all the limitations of claims 1, 2, 3, 16, and 17          | 44 |  |  |
|    | 2.  | Muraki, Taoka, and Joy disclose and render obvious all the limitations of claim 4, 5, and 19                  | 49 |  |  |
|    | 3.  | Muraki, Taoka, and Joy disclose and render obvious all the limitations of claim 14                            | 51 |  |  |
|    | 4.  | Muraki, Taoka, and Joy disclose and render obvious all the limitations of claim 15                            | 52 |  |  |
|    | 5.  | It would have been obvious to combine the teachings of Muraki, Taoka, and Joy                                 | 53 |  |  |
| F. | Muraki, Taoka, Joy, and Speronello Render Claims 6, 7, 8-13, 18, 20, and 21 Obvious |   |    |  |  |
|    | 1.  | Muraki, Taoka, Joy, and Speronello disclose and render obvious all the limitations of claims 6 and 20         | 55 |  |  |
|    | 2.  | Muraki, Taoka, Joy, and Speronello disclose and render obvious all the limitations of claims 7 and 21         | 55 |  |  |
|    | 3.  | Muraki, Taoka, Joy, and Speronello disclose and render obvious all the limitations of claims 8, 9, 10, and 11 | 56 |  |  |
|    | 4.  | Muraki, Taoka, and Joy disclose and render obvious all the limitations of claims 12, 13, and 18               | 58 |  |  |
|    | 5.  | It would have been obvious to combine the teachings of  | 59 |  |  |



| VII          | PURPORTED | <b>SECONDARY</b> | CONSIDERATIONS   | 62                                    |
|--------------|-----------|------------------|------------------|---------------------------------------|
| <b>V 11.</b> | IUMUNILD  | DECOMBINE        | COMBIDEIX MICHS. | · · · · · · · · · · · · · · · · · · · |



I, Magdi Khair, declare as follows:

## I. <u>BACKGROUND AND QUALIFICATIONS</u>

- 1. I currently work as a technical consultant providing engineering and educational services in connection with diesel automotive technology. I have been engaged in this work since 2011.
- 2. I obtained a Bachelor of Science in Automotive Engineering in 1967 from Ain Shams University in Cairo, Egypt. The emphasis of my undergraduate studies was internal combustion engine design and technology.
- 3. After obtaining my undergraduate degree, I obtained a Masters in Thermodynamics in 1970 from the University of Birmingham, Birmingham, UK.
- 4. I also obtained a MBA in 1982 from Michigan State University, in Troy, Michigan. My thesis focused on the marketing of novel diesel injection systems.
- 5. Further, I obtained a Ph.D in Engineering Management in 2007 from Warren National University in Cheyenne, WI.
- 6. I was most recently employed as a researcher at the Southwest Research Institute (SwRI), San Antonio, TX. I started at SwRI in June 1991 and continued until September 2011.
- 7. At SwRI, I engaged in engine testing and exhaust emission measurement and control. I also studied the catalytic after treatment of diesel



# DOCKET

# 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.

