

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

REACTIVE SURFACES LTD, LLP

Petitioner

v.

TOYOTA MOTOR CORPORATION

Patent Owner

Case: IPR2016-01914

Patent No. 8,394,618 B2

**DECLARATION OF ERIC RAY IN SUPPORT OF PETITION OF PETITION FOR
INTER PARTES REVIEW OF U.S. PATENT NO. 8,394,618 B2**

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ATTACHMENTS:

- A. *Curriculum vitae* of Eric Ray
- B. Ramotowski, R. S. (2001). Composition of Latent Print Residue. In H. C. Lee, & R. E. Gaensslen (Eds.), *Advances in Fingerprint Technology* (2nd ed.). Boca Raton: CRC Press. pp. 63-104. (Ex. 1037)
- C. Olsen, R. D. (1978). *Scott's Fingerprint Mechanics*. Springfield: Charles C. Thomas. pp. 109-158. (Ex. 1038)
- D. Mong, G. M., Petersen, C. E., & Clauss, T. R. (1999). *Advanced Fingerprint Analysis Report: Fingerprint Constituents*. Pacific Northwest National Laboratory, U.S. Department of Energy, Richland. (Ex. 2013)
- E. Thomas, G. L., Reynoldson, T. E. (1975). *Some observations on fingerprint deposits*. *Journal of Physics D: Applied Physics*, 8(6), 724-729. (Ex. 1039)
- F. Rose, A., Rose, E. (1966) "The Condensed Chemical Dictionary (7th ed.). New York: Reinhold Publishing Co. pp. 80, 104, 222-223, 545, 556, 644-645, 691, 704, 716, 887, 891. (Ex. 1040)
- G. Federal Bureau of Investigations. (1986). *The Science of Fingerprints* (Rev. 12-84). Department of Justice. Washington, D.C.: U.S. Government Printing Office. pp. 170-174, 211. (Ex. 1041)
- H. Kent, T. (Ed.). (2001). *Manual of Fingerprint Development Techniques* (2nd ed.). Sandridge: Home Office Police Scientific Development Branch. Sections 1.1, 1.2, 2.6, and "Visual Examination". (Ex. 1042)
- I. Bobev, K. (1995). *Fingerprints and factors affecting their condition*. *Journal of Forensic Identification*, 45(2), 176-183. (Ex. 1043)
- J. Bleay, S. M., Sears, V. G., Bandey, H. L., Gibson, A. P., Bowman, V. J., Downham, R., . . . Selway, C. (2013). *Fingerprint Source Book: manual of development techniques*. London: Home Office - Centre for Applied Sciences and Technology. Chapter 2. (Ex. 1044)
<http://www.gov.uk/government/publications/fingerprint-source-book>

- K. Scruton, B., Robins, B. W., & Blott, B. H. (1975). *The deposition of fingerprint films*. Journal of Physics D: Applied Physics, 8(6), 714-723. (Ex. 1045)
- L. Olsen, R. D. (1987, Feb). *Chemical dating techniques for latent fingerprints: a preliminary report*. Identification News, 10-12. (Ex. 1046)
- M. Craig, B. M. (1953). *Refractive indices of some saturated and monoethenoid fatty acids and methyl esters*. Canadian Journal of Chemistry, 31(5), 499-504. (Ex. 1047)
- N. Dorinson, A., McCorkle, M. R., & Ralston, A. W. (1942). *Refractive indices and densities of normal saturated fatty acids in the liquid state*. Journal of the American Chemical Society, 64(12), 2739-2741. (Ex. 1048)

I. INTRODUCTION

1. My name is Eric Ray. Since 2007, I have been employed as a Forensic Scientist in the Latent Print Unit of the Arizona Department of Public Safety Scientific Analysis Bureau. In that position I routinely process items of evidence to visualize and capture fingerprints from a wide variety of items. Subsequently, I routinely compare them to exemplar (known) fingerprints of suspects and victims or enter the fingerprint images for search through an Automated Fingerprint Identification System (“AFIS”). Finally, I will occasionally be called to testify to my examination and opinion in court. I am also the owner of Ray Forensics and work as a trainer of other forensic professionals and as a consultant on fingerprint matters. Specific details of my education, employment, publications, expert testimony, and training received are provided in Attachment A.
2. I have been asked to research and to give my opinion on fingerprint issues as they relate to U.S. Patent No. 8,394,618 B2 entitled “LIPASE-CONTAINING POLYMERIC COATINGS FOR THE FACILITATED REMOVAL OF FINGERPRINTS (“the ‘618 Patent” [Ex. 1001]) in Petition for *Inter Partes* Review of the ‘618 Patent which requests the Patent Trial and Appeal Board (“PTAB”) to review and cancel Claims 1-11 of the ‘618 Patent.

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