IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent of: James J. Fallon, et al.
U.S. Patent No.:   8,880,862   Attorney Docket No.: 39521-0025IP2
Issue Date: November 4, 2014
Appl. Serial No.:   13/118,122
Filing Date: May 27, 2011
Title: SYSTEMS AND METHODS FOR ACCELERATED
                     LOADING OF OPERATING SYSTEMS AND
                     APPLICATION PROGRAMS

DECLARATION OF DR. CHARLES J. NEUHAUSER

I.   Introduction

1.   My name is Dr. Charles J. Neuhauser. I understand that I am submitting a

declaration in connection with an *Inter Partes* review ("IPR") proceeding before

the United States Patent and Trademark Office for U.S. Patent No. 8,880,862

("the '862 Patent").

2.   I have been retained on behalf of Apple Inc. to offer technical opinions with

respect to the '862 Patent and the prior art references cited in this IPR. My

compensation is not based on the outcome of this matter.

3.   I am not a lawyer. However, counsel has advised me of legal concepts that are

relevant to IPR proceedings and to the opinions that I offer in this declaration. I

understand that, during IPR, claims of the subject patent are given a broadest

reasonable interpretation. Counsel has advised me that the broadest reasonable

interpretation must be consistent with the specification, and that claim language should be read in light of the specification and teachings in the underlying patent.

4. I have reviewed the '862 Patent, including the claims of the patent in view of the specification, and I have reviewed the '862 Patent's prosecution history. In addition, I have reviewed the following documents: U.S. Patent No. 6,374,353 ("Settsu"), U.S. Patent No. 6,145,069 ("Dye"), U.S. Patent No. 7,190,284 ("Dye '284"), Burrows et al., "On-line Data Compression in a Log-structured File System" (1992) ("Burrows"), U.S. Patent No. 6,317,818 ("Zwiegincew"), U.S. Patent No. 6,633,968 ("Zwiegincew '968"), U.S. Patent No. 6,434,695 ("Esfahani"), U.S. Patent No. 6,073,232 ("Kroeker"), Jeff Prosise, DOS 6 – The Ultimate Software Bundle?, PC Magazine, Apr. 13, 1993 ("Prosise"), Decoder, File, Program File, Direct Memory Access, RAM, and RAM Cache, Microsoft Press Computer Dictionary (3d ed. 1997)("MSFT Dictionary"), Jacob Ziv & Abraham Lempel, A Universal Algorithm for Sequential Data Compression, IT-23 No. 3 IEEE Transactions on Information Theory 337 (1977)("Ziv"), James A. Storer & Thomas G. Szymanski, Data Compression via Textual Substitution, 19 No. 4 Journal of the Association for Computing Machinery (1982)("Storer"), Kyle Loudon, Mastering Algorithms with C (1999) ("Loudon"), Michael Barr, Programming Embedded Systems in C and C++ (1999)("Barr"), Eric Pearce,

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Windows NT in a Nutshell (1999)("Pearce"), and Tim O'Reilly, Troy Mott, and Walter Glenn, Windows 98 in a Nutshell (1999)("O'Reilly").

5. I provided details of my professional background with my earlier-submitted declarations, and I do not repeat those details here.

II. Detailed Discussion

A. One of Ordinary Skill

6. It is my understanding that I must analyze and apply the prior art cited above from the perspective of a person having ordinary skill in the art as of February 3, 2000 ("one of ordinary skill"), which I understand to be the '862 Patent's earliest possible priority date.

7. The '862 Patent relates to accessing data in conventional computer systems. Figure 1 is an exemplary figure that illustrates the basic structure of one embodiment of the '862 Patent's system ['862 Patent, 4:36-37, 5:63-65]. This and other similar figures of the '862 Patent show straightforward and well known structures related to conventional computer systems, such as the widely used personal computer. In my opinion, one of ordinary skill would be a person with a Bachelor's Degree in electrical engineering, computer engineering, or a related

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area of study. In addition, this person would have between three and five years of practical experience in the design and implementation of computer systems, such as personal computers. Alternatively, a person with a Master's Degree in the area of electrical engineering, computer engineering, or a related area of study and somewhat less practical experience would be similarly qualified.

8.   I am well aware of the qualifications of such a person because I have worked with, supervised, and hired engineers with similar capabilities. By the year 2000, I had been awarded a Ph.D. in CS/EE with a specialization in computer engineering and had over 30 years of practical experience. Thus, by February 3, 2000, I was at least as qualified as the person having ordinary skill in the art that I have identified above. Moreover, I understand the perspective of one of ordinary skill, which I have applied in my analysis.

B.   Prior Art and the Claims of the '862 Patent

9.   The Patent Owner has requested amendment of the challenged claims, conditional on the Board finding independent claims 8, 11, and 14 unpatentable. Alleged patentability rests with the amendments to the independent claims, with amendments to the dependent claims serving the purpose of conforming the dependent claims to the changes in the independent claims.

10. The amendments introduced by Patent Owner in its proposed substitute claims are directed toward trivial features that one of ordinary skill would have considered obvious over the prior art.

11. As I discuss below, for example, one of ordinary skill would have been aware of the relatively high cost of non-volatile flash memory used by Sukegawa, and related constraints on the capacity of Sukegawa's flash memory. In seeking to reduce utilization of this expensive and limited flash memory, one of ordinary skill would have found it obvious to make use of less costly volatile memory (e.g., RAM) when preloading boot data in a manner otherwise consistent with Sukegawa. Beyond reducing costs, one of ordinary skill would expect this approach to enhance performance.

12. Esfahani and Kroeker each provide specific teachings that would further motivate and support such an approach to the implementation of Sukegawa's system, and if Sukegawa's system were implemented in the manner described, it would meet the amended claim language.

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