

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TRADESTATION GROUP, INC.,
TRADESTATION SECURITIES, INC., IBG LLC, AND
INTERACTIVE BROKERS LLC.

Petitioners

v.

TRADING TECHNOLOGIES INTERNATIONAL, INC.

Patent Owner

Case CBM2016-00051
U.S. Patent 7,904,374 B2

DECLARATION OF DAN R. OLSEN, JR.

I. Qualifications

1. I, Dan R. Olsen Jr., Ph.D., am a resident of Orem, Utah and have more than 35 years of experience in computer science and human-computer interaction (HCI). I hold a doctorate in Computing and Information from the University of Pennsylvania. For 3 ½ years I was an Assistant Professor of Computer Science at Arizona State University. I then served for 30 years on the faculty of Brigham Young University retiring as a full professor in 2015. During that time at BYU, I also served as the chair of the Department of Computer Science. I took leave from BYU in 1996 to become the founding director of the Human Computer Interaction Institute in the School of Computer Science at Carnegie Mellon University. I returned to BYU in 1998. I am currently the CEO of a software startup in educational technology (SparxTeq, Inc).

2. During the course of my academic career, I authored over 70 papers in the field of computer science. The topics on which I have published papers are:

- User Interface Management Systems
- Syntactic representations of user interfaces
- Multi-user interaction across networks
- Induction of interaction behavior from pictures
- Novel interaction techniques using speech and laser pointers
- Interactive machine learning

- Interactive robotics
- Interactive television

3. I currently hold 4 patents in human-computer interaction. I have authored 3 textbooks on the techniques of software design for human-computer interaction.

4. I have had extensive involvement in professional societies, such as the Association for Computing Machinery (ACM), the premiere society in computing. I have served in many offices of ACM's Special Interest Group on Computer Human Interaction (SIGCHI) and currently serve as its treasurer. I have been conference chair of CHI, which is the premier conference in Computer Human Interaction. I was the founding editor of ACM's Transactions on Computer Human Interaction. I was a co-founder and active leader for the conference on User Interface Software and Technology (UIST) for the past 29 years. I have also served at the governor's request on the Utah Science, Technology and Research (USTAR) board, which oversees and funds state economic development efforts in technology.

5. I twice received best paper awards in intelligent user interfaces. In 2004, I was appointed to the CHI Academy for international excellence in Computer Human Interaction research. In 2007, I was recognized as one of ACM's

Fellows for research in computer science and in 2012 received the CHI Lifetime Research Award, which is the highest award in Computer Human Interaction.

II. Graphical User Interfaces and the ‘374 Patent

6. Attorneys for the Patent Holder have explained to me that U.S. Patent No. 7,904,374 (“the ‘374 patent”) has been challenged as a Covered Business Method (CBM) patent. I have been asked to review the nature of the invention in the ‘374 patent. As explained below, it is my opinion that the ‘374 patent claims a technological invention because the claimed invention provides a technical improvement to prior graphical user interfaces.

III. Historical context

7. In discussing how graphical user interfaces are a technology with specific technical problems, I would first like to refer to two very old patents involving earlier mechanical technologies. I will use these two patents to illustrate two key pieces of technical knowledge that are used widely in graphical user interface (GUI) technology.

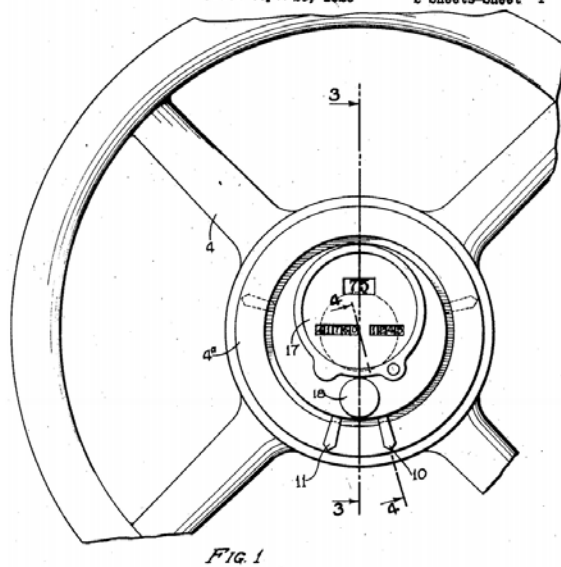


Figure 1 – Speedometer in the Steering Wheel.

IV. Simplification of perception – US patent 1,692,601

8. In 1928, U.S. patent 1,692,601 was issued for an automobile speedometer that was mounted in the center of the steering wheel. This patent claims the ability to perceive an automobile's speed. It was not for the sensor for measuring speed (which was well known at the time). It was not for the concept of displaying speed in a meter (which was also well known). The key idea was as follows:

first, to provide a steering control means -for vehicles on which is mounted a speedometer whereby the speed of the vehicle may be readily determined by merely dropping the vision slightly to the middle portion of the steering wheel which is substantially in line with the line of vision of the driver and as close to the eyes of the driver as

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