IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ALLSTEEL INC.
Petitioner

v.

DIRTT ENVIRONMENTAL SOLUTIONS LTD.
Patent Owner

Patent No. 8,024,901
Filing Date: August, 17, 2005
Issue Date: September 27, 2011
Title: INTEGRATED RECONFIGURABLE WALL SYSTEM

Inter Partes Review No. Unassigned

EXPERT DECLARATION OF JOSEPH J. BEAMAN, JR.

Introduction and Summary of Opinion

1. I have been retained by HNI Corporation and Allsteel, Inc. to provide analysis and expert opinions on various topics, including: (1) an overview of the technology related to U.S. Pat. No. 8,024,901 ("the '901 Patent"), the challenged patent in this proceeding; (2) the level of ordinary skill in the art; and (3) the patentability of the claims of the '901 Patent. In particular, for the purposes of this report, I have been asked to provide an analysis of the scope and content of the '901 Patent relative to the state of the art at the time of the earliest application underlying the '901 Patent. I have also been retained to provide analysis regarding what a person of ordinary skill in the mechanical arts related to the modular partition and wall field would have understood as of the filing date of the '901 Patent.

2. This report summarizes the opinions that I have formed to date, and it is based on personal knowledge, skill, experience, and review of materials read and considered in connection with this opinion. I may modify my opinions if necessary, based on further review and analysis of information provided to me subsequent to the serving of this report. If called to testify at a U.S. Patent and Trademark Office ("PTO") hearing regarding the contents of this report, I will do so.

3. Based on the level of ordinary skill in the art and my investigation I have come to the following conclusions:

- Asserted claims 1-25 patent are unpatentable.

4. I reserve the right to supplement this report as permitted to address any issues raised by expert(s) engaged by Dirtt Environmental Solutions Ltd. ("DIRTT") or resulting from further discovery. Additionally, I reserve my right to supplement this section if new information that would affect the priority entitled to the '901 Patent, becomes available to me.

Background, Education, and Experience

5. I received my Bachelor of Science in Mechanical Engineering with high honors from the University of Texas at Austin in 1972. I received my Master of Science degree in Mechanical Engineering from The University of Texas at Austin in 1975. I received my Sc.D. in Mechanical Engineering from the Massachusetts Institute of Technology (MIT) in 1979.

6. I am currently the Earnest F. Gloyna Regents Chair in Engineering and Professor in the Department of Mechanical Engineering in the Cockrell School of Engineering at the University of Texas at Austin in Austin, Texas. I am also the former Chair of the Department of Mechanical Engineering in the Cockrell School of Engineering at the University of Texas at Austin (serving 2001–2012). I have received numerous awards for accomplishments in these roles, including being

named the Distinguished Mechanical Engineer by the Mechanical Engineering Distinguished Alumni organization at the University of Texas at Austin and being named a member of the National Academy of Engineers in 2013. Most recently, in 2015, I was elected as a fellow of the National Academy of Inventors. I am a Professional Engineer in the State of Texas, and I serve on the board of directors of Society of Manufacturing Engineers. I also am the technical advisor for advanced analysis in the Digital Manufacturing and Design Institute for Innovation (DMDII), located in Chicago, IL.

7. My work in the classroom consists of both teaching and mentoring. I teach or have taught classes relating to the following subjects: machine elements, dynamics, fluid mechanics, and design. I have also been an advisor for numerous design teams over the course of my teaching career. For the past 32 years, I have also overseen, supervised, and mentored mechanical engineering students in multiple senior and graduate projects.

8. In addition to my work in the classroom, I concentrate a large portion of my time on research and teaching in the mechanical engineering field, with an emphasis on advanced manufacturing techniques, especially processes involving heating and forming various materials, which includes formation of metal ingots that are used in final extrusion and forging operations. For example, I have performed research with the Special Metals Processing Consortium relating to

controlling their solidification processes. Also, a significant portion of my research has concerned the design and manufacture of 3-D printing machinery, having served as Chief Technology Officer of DTM Corporation, which commercialized Selective Laser Sintering (SLS). As part of my duties, I led the design of the first machine, which involved the industrial design and aesthetics of the machine. I was one the inventors of SLS technology and a founder of DTM .

9. In 1979, I began working at the University of Texas at Austin as an assistant professor. In 1985, I was promoted to Associate Professor, and was subsequently promoted to Full Professor in 1989. I became a chaired professor in 2001. Also in 2001, I became the Department Chair of Mechanical Engineering and served in that role until 2012, serving the longest term in the Department's history. I am presently the Earnest F. Gloyna Chair in Engineering and director of the Advanced Manufacturing and Design Center at the University of Texas at Austin.

10. Additionally, I am a named inventor on nineteen U.S. patents with one just allowed in July 2015, have authored and co-authored numerous publications in the field of mechanical engineering, and have worked, consulted, and testified in several patent cases. All publications I have authored within the preceding ten years and the cases in which I testified in the last four years as an expert at trial or by deposition are attached as Appendix A.

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