

Patent No. 6,205,411
Petition For *Inter Partes* Review

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Mako Surgical Corp.
Petitioner

v.

Blue Belt Technologies, Inc.
Patent Owner

Patent No. 6,205,411
Issue Date: March 20, 2001
Title: COMPUTER-ASSISTED SURGERY PLANNER AND
INTRA-OPERATIVE GUIDANCE SYSTEM

Case IPR: Unassigned

DECLARATION OF ROBERT D. HOWE

I. INTRODUCTION

1. I have been retained by Morrison & Foerster LLP in this case as an expert in the relevant art.

2. I have been asked to provide my opinions and views on the materials I have reviewed in this case related to U.S. Patent No. 6,205,411 (“the ’411 patent” (Ex. 1001)) and the scientific and technical knowledge regarding the same subject matter as the ’411 patent before and at the earliest effective filing date of November 12, 1998.

3. My opinions and underlying reasoning for the opinions are set forth below.

II. PROFESSIONAL BACKGROUND

4. I am currently the Abbott and James Lawrence Professor of Engineering at Harvard University. I also serve as Area Dean (equivalent to Department Chair) of Bioengineering. I am the director of the BioRobotics Laboratory at Harvard University, which is the home to over a dozen doctoral students, postdoctoral fellows, and visiting scholars. Our research focuses on robotics, particularly robotic manipulation and robot-assisted surgery. Among other projects, we have developed image-guided and minimally invasive surgical robot systems. Our work has been funded by government grants, private foundations, and commercial partners.

5. I earned a bachelor's degree in physics from Reed College in 1979 and Master of Science and Doctor of Philosophy degrees in Mechanical Engineering from Stanford University in 1987 and 1990, respectively.

6. My work has resulted in over four issued patents, six patent applications, and approximately 200 peer-reviewed publications.

7. A copy of my curriculum vitae that summarizes my education, work history, and publications is in Appendix A.

8. I am being compensated at the rate of \$395/hour for taking part in this case but have no other relationship to Mako Surgical Corp. My compensation is not dependent on the outcome of this case.

III. BASIS FOR OPINION

9. My opinions and views set forth in this report are based on my education, training, and experience in the relevant field, as well as the materials I reviewed in this case, and the scientific knowledge regarding the same subject matter that existed prior to the earliest effective filing date of the '411 patent.

IV. PATENT LAW STANDARD

10. It is my understanding that a patent claim is invalid for anticipation if it can be shown that each and every limitation of the claim is disclosed either expressly or inherently in a single prior art reference.

11. It is my understanding that a patent claim is invalid for obviousness if the claimed invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made, in view of a single prior art reference or a combination of prior art references. Specifically, I understand that a determination of whether a claimed invention would have been obvious requires taking into consideration factors which include: (a) assessing the scope and content of the prior art; (b) the differences between the claimed invention and the prior art; and (c) the level of ordinary skill in the art.

12. It is my understanding that when combining two or more references, or when modifying an item disclosed in one reference, so as to arrive at a claimed invention, one should consider whether there is a reason for the proposed combination or modification. For example, when a technology or product is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. For the same reason, if a technique has been used to improve one device and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.

13. It is my understanding that the claims of a patent are analyzed from the perspective of “a person of ordinary skill in the art” and that the claims of the

'411 patent are interpreted as a person of ordinary skill in the art would have understood them at the time the '093 application, which issued as the '411 patent, was filed. It is further my understanding that a claim is given the "broadest reasonable construction in light of the specification" in *inter partes* review. See 37 C.F.R. § 42.100(b).

14. It is my understanding that "prior art" includes patents and publications in the relevant literature and information that predate the effective priority date of the '411 patent. It is also my understanding that priority is determined on a claim-by-claim basis.

15. It is my understanding that a patent application can disclose prior technologies as prior art in its specification, and the admitted prior information can be used as "prior art" against its claims.

V. A PERSON OF ORDINARY SKILL IN THE ART

16. A person of ordinary skill in the art relevant to the '411 patent would have had at least a bachelor's degree in mechanical, electrical, or biomedical engineering or computer science and at least five years of experience developing or researching image-guided medical devices and procedures or surgical robotics.

VI. OVERVIEW OF THE APPLICABLE TECHNOLOGIES

17. The '411 patent is directed to systems and methods for facilitating implantation of an artificial component in a hip joint, knee joint, hand and wrist

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