

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MAKO SURGICAL CORP.,
Petitioner,

v.

BLUE BELT TECHNOLOGIES, INC.,
Patent Owner.

Case IPR2015-00629
Patent 6,757,582 B2

Before SALLY C. MEDLEY, KEVIN F. TURNER, and
WILLIAM M. FINK, *Administrative Patent Judges*.

MEDLEY, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
Inter Partes Review
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

I. INTRODUCTION

We have jurisdiction to hear this *inter partes* review under 35 U.S.C. § 6(c). This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons discussed herein, Petitioner has shown by a preponderance of the evidence that claims 1, 3, 5–9, 11, 13, 14, and 17 of U.S. Patent No. 6,757,582 B2 are unpatentable, but has not shown

by a preponderance of the evidence that claims 16, 21–30, 34–42, and 47–58 of U.S. Patent No. 6,757,582 B2 are unpatentable.

A. Procedural History

Petitioner, Mako Surgical Corporation, filed a Petition requesting an *inter partes* review of claims 1, 3, 5–14, 16–30, 34–42, and 47–58 of U.S. Patent No. 6,757,582 B2 (Ex. 1501, “the ’582 patent”). Paper 1 (“Pet.”). Patent Owner, Blue Belt Technologies, Inc., did not file a Preliminary Response. Upon consideration of the Petition, on July 30, 2015, we instituted an *inter partes* review of claims 1, 3, 5–9, 11, 13, 14, 16, 17, 21–30, 34–42, and 47–58, pursuant to 35 U.S.C. § 314. Paper 6 (“Dec.”).

Subsequent to institution, Patent Owner filed a Patent Owner Response (Paper 10 (“PO Resp.”)) and Petitioner filed a Reply (Paper 13 (“Pet. Reply”)).

Patent Owner filed a Motion to Exclude (Paper 17; “PO Mot. Exclude”) certain portions of Exhibit 1016. Petitioner filed an Opposition to the Motion to Exclude (Paper 18; “Pet. Exclude Opp.”), and Patent Owner filed a Reply (Paper 20; “PO Exclude Reply”).

An oral hearing was held on April 7, 2016, and a transcript of the hearing is included in the record (Paper 23; “Tr.”).

B. Related Proceedings

The ’582 patent is involved in the following lawsuit: *Mako Surgical Corp. v. Blue Belt Technologies, Inc.*, No. 0:14-cv-61263-MGC (S.D. Fla.). Pet. 1.

C. The ’582 Patent

The ’582 patent relates to a method and system for providing control to a cutting tool. Ex. 1001, Abstract. The specification of the ’582 patent

describes a workpiece (e.g., a bone) that includes a target shape. *Id.* at 1:22–37. Markers can be associated with or otherwise affixed to the cutting tool and workpiece. *Id.* at 9:5–6. The markers may be tracked using the system, resulting in tracking data that can be used to provide a control for the cutting tool. *Id.* at 9:54–61.

D. Illustrative Claim

Claims 1, 17, and 24 are independent claims. Claims 3, 5–9, 11, 13, 14, and 16 directly or indirectly depend from claim 1; claims 21–23 directly or indirectly depend from independent claim 17; and claims 25–30, 34–42, and 47–58 directly or indirectly depend from claim 24. The independent claims 1, 17, and 24 are reproduced below.

1. A system, comprising:

a cutting tool;

a workpiece that includes a target shape;

a tracker to provide tracking data associated with the cutting tool and the workpiece, where the tracker includes at least one of: at least one first marker associated with the workpiece, and at least one second marker associated with the cutting tool; and

a controller to control the cutting tool based on the tracking data associated with the cutting tool and the tracking data associated with the workpiece.

Ex. 1001, 20:37–47.

17. A system, comprising:

a workpiece having a target shape included therein,

a tracker to track at least one of: a cutting tool and the workpiece, and,

a control system, the control system including instructions to cause a processor to track the cutting tool and the workpiece, to associate the tracked data to an image associated with the cutting tool and an image associated with the workpiece, where the workpiece includes an image associated with the target shape, to determine a relationship between the cutting tool and at least one of the workpiece and the target shape, and to provide a control to the cutting tool based on at least one of the relationship of the cutting tool and the workpiece, and the relationship of the cutting tool and the target shape.

Id. at 21:39–53.

24. A method, the method comprising:

providing a workpiece that includes a target shape,
providing a cutting tool,
providing a 4-D image associated with the workpiece,
identifying the target shape within the workpiece image,
providing a 4-D image associated with the cutting tool,
registering the workpiece with the workpiece image,
registering the cutting tool with the tuning tool image,
tracking at least one of the workpiece and the cutting tool,
transforming the tacking data based on image coordinates to determine a relationship between the workpiece and the

cutting tool, and based on the relationship, providing a control to the cutting tool.

Id. at 22:27–41.

E. Grounds of Unpatentability

We instituted an *inter partes* review of claims 1, 3, 5–9, 11, 13, 14, 16, 17, 21–30, 34–42, and 47–58 on the following grounds:

Claim(s)	Basis	Reference(s)
1, 5, 6, 8, 9, 13, 14, 16, 17, 21–30, 34–42, 47, and 50–58	§ 102(b)	Taylor ¹
3	§ 103(a)	Taylor and Glassman ²
48 and 49	§ 103(a)	Taylor and Delp ³
7	§ 103(a)	Taylor and DiGioia ⁴
11	§ 103(a)	Taylor

¹ Russell H. Taylor, et al., *An Image-Directed Robotic System for Precise Orthopaedic Surgery*, 10(3) IEEE TRANSACTIONS ON ROBOTICS AND AUTOMATION, 261–75 (June 1994) (Ex. 1008) (“Taylor”).

² U.S. Patent No. 5,408,409, issued Apr. 18, 1995 (Ex. 1009) (“Glassman”).

³ Scott L. Delp, et al., *An Interactive Graphics-Based Model of the Lower Extremity to Study Orthopaedic Surgical Procedures*, 37(8) IEEE TRANSACTIONS ON BIOMEDICAL ENGINEERING, 757–67 (Aug. 1990) (Ex. 1011) (“Delp”).

⁴ U.S. Patent No. 6,205,411 B1 (issued Mar. 20, 2001) (Ex. 1010) (“DiGioia”).

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