

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

VARIAN MEDICAL SYSTEMS, INC.,
Petitioner,

v.

WILLIAM BEAUMONT HOSPITAL,
Patent Owner.

Case IPR2016-00169
Patent 7,471,765 B2

Before MICHAEL W. KIM, KALYAN K. DESHPANDE, and
MATTHEW R. CLEMENTS, *Administrative Patent Judges*.

DESHPANDE, *Administrative Patent Judge*.

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

I. INTRODUCTION

A. Background

Varian Medical Systems, Inc. (“Petitioner”) filed a Petition to institute an *inter partes* review of claims 1–13 and 20–31 of U.S. Patent No. 7,471,765 B2 (Ex. 1001, “the ’765 patent”). Paper 1 (“Pet.”). William Beaumont Hospital (“Patent Owner”) filed a Preliminary Response. Paper 11 (“Prelim. Resp.”).

Pursuant to 35 U.S.C. § 314, we instituted *inter partes* review of the ’765 patent, on May 5, 2016, under 35 U.S.C. § 103(a), as to claims 1–13 and 20–31 on the basis that these claims would have been obvious over Jaffray 1999 SPIE,¹ Jaffray 1999 JRO,² Adler,³ and Depp.⁴ Paper 14 (“Dec.”).

Patent Owner filed a Response (Paper 25, “PO Resp.”), and Petitioner filed a Reply (Paper 51, “Pet. Reply”). A consolidated oral hearing was held on January 31, 2017, and the hearing transcript has been entered in the record. Paper 76 (“Tr.”). Patent Owner also filed a Motion to Exclude (Paper 59, “PO Mot.”), to which Petitioner filed an Opposition (Paper 65, “Pet. Opp.”) and Patent Owner filed a Reply (Paper 69, “PO Reply”).

¹ D.A. Jaffray *et al.*, *Performance of a Volumetric CT Scanner Based Upon a Flat-Panel Imager*, SPIE, 3659:204–14 (Feb. 1999) (Ex. 1005, “Jaffray 1999 SPIE”).

² David A. Jaffray *et al.*, *A Radiographic and Tomographic Imaging System Integrated into a Medical Linear Accelerator for Localization of Bone and Soft-Tissue Targets*, *Int. J. Radiation Oncology Biol. Phys.*, 45:773–89 (Oct. 1999) (Ex. 1006, “Jaffray 1999 JRO”).

³ U.S. Patent No. 5,207,223, issued May 4, 1993 (Ex. 1003).

⁴ U.S. Patent No. 5,427,097, issued June 27, 1995 (Ex. 1004).

After the oral hearing, we authorized additional briefing on the proper claim construction of the phrase “wherein said computer receives said image of said object and based on said image sends a signal to said radiation source that controls said path of said radiation source,” as recited by independent claim 1 of the U.S. Patent 6,842,502 B2, and as similarly recited by independent claims 1, 7, 20, and 26. Paper 75. Patent Owner filed a Response (Paper 77) and Petitioner filed a Response (Paper 78).

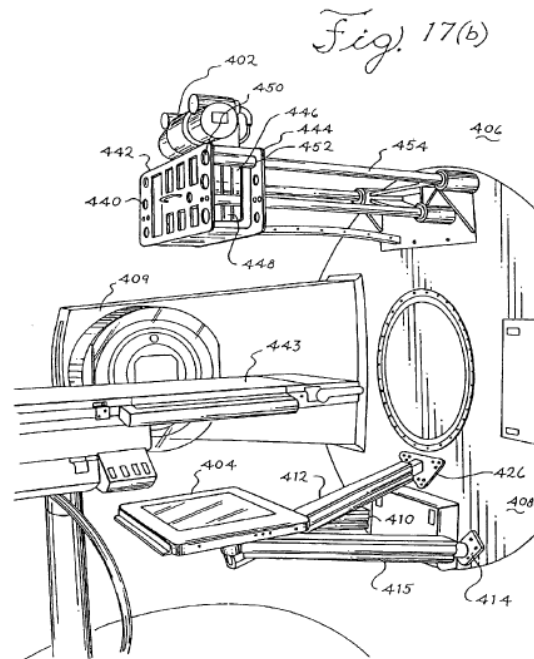
We have jurisdiction under 35 U.S.C. § 6. This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. Pursuant to our jurisdiction under 35 U.S.C. § 6, we conclude, for the reasons discussed below, Petitioner has not shown by a preponderance of the evidence that claims 1–13 and 20–31 of the ’765 patent are unpatentable under 35 U.S.C. § 103(a).

B. Related Proceedings

The parties indicate that the ’765 patent is involved in the following district court case: *Elekta Ltd. and William Beaumont Hosp. v. Varian Med. Sys., Inc.*, Case No. 2:15-cv-12169-AC-MKM (E.D. Mich.). Pet. 1; Paper 4, 2. Petitioner and Patent Owner identify further the following *inter partes* reviews that also involve the ’765 patent: IPR2016-00170 and IPR2016-00171. Pet. 1; Paper 4, 1. Patent Owner identifies further the following *inter partes* reviews directed to U.S. Patent 6,842,502 B2 (“the ’502 patent”), which the ’765 patent claims priority to: IPR2016-00160, IPR2016-00162, IPR2016-00163, and IPR2016-00166. Paper 4, 2. Patent Owner identifies further the following *inter partes* reviews directed to U.S. Patent 7,826,592 B2, which claims priority to the ’765 patent: IPR2016-00187. *Id.*

C. The '765 Patent

The '765 patent discloses that it is directed to a cone-beam computed tomography system that employs an amorphous silicon flat-panel imager for use in radiotherapy applications where images of a patient are acquired with the patient in a treatment position on a treatment table. Ex. 1001, 1:16–21. Figure 17(b) (below) depicts a diagrammatic view of one orientation of an exemplary wall-mounted cone beam computerized tomography system employing a flat-panel imager. *Id.* at 6:48–52.



Specifically, Figure 17(b) above shows wall-mounted cone beam computerized tomography system 400 including an x-ray source, such as x-ray tube 402, and flat-panel imager 404 mounted on gantry 406. *Id.* at 19:41–43. X-ray tube 402 generates beam of x-rays 407 in a form of a cone or pyramid. *Id.* at 19:43–56. Flat-panel imager 404 employs amorphous silicon detectors. *Id.* at 19:46–47.

D. Illustrative Claim

Petitioner challenges claims 1–13 and 20–31 of the '765 patent. Pet. 14–60. Claim 1 is illustrative of the claims at issue and is reproduced below:

1. A radiation therapy system comprising:
 - a radiation source that moves about an object and directs a beam of radiation towards said object;
 - a cone-beam computed tomography system comprising:
 - an x-ray source that moves about said object and emits toward said object from multiple positions around said object x-ray beams in a cone-beam form;
 - a flat-panel imager positioned to receive x-rays after at least a portion of said x-ray beams pass through said object, said imager providing an image that contains three-dimensional information concerning said object based on a plurality of two-dimensional projection images; and
 - a computer coupled to said cone-beam computed tomography system, wherein said computer receives said three-dimensional information and based on said three dimensional information received controls a path of said beam of radiation through said object by controlling a relative position between said radiation source and said object, wherein said receiving said x-rays by said flat panel imager is performed substantially at a time of occurrence of said controlling said path of said beam of radiation through said object.

Ex. 1001, 28:2–24.

E. Instituted Ground of Unpatentability

We instituted *inter partes* review of claims 1–13 and 20–31 of the '765 patent under 35 U.S.C. § 103(a) as obvious over a combination of Jaffray 1999 SPIE, Jaffray 1999 JRO, Adler, and Depp. Dec. 26–27.

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