

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ELEKTA, INC.,
Petitioner,

v.

VARIAN MEDICAL SYSTEMS, INC.,
Patent Owner.

Case IPR2016-00476
Patent 8,116,430 B1

Before BRIAN J. McNAMARA, PATRICK M. BOUCHER, and
GARTH D. BAER, *Administrative Patent Judges*.

BAER, *Administrative Patent Judge*.

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

Elekta Inc. (“Petitioner”) filed a Corrected Petition (Paper 3, “Pet.”) requesting *inter partes* review of claims 1–3, 6–10, and 12 of U.S. Patent No. 8,116,430 (Ex. 1001, “the ’430 patent”). Pursuant to 35 U.S.C. § 314(a), we determined the Petition showed a reasonable likelihood that Petitioner would prevail in establishing the unpatentability of claims 1–3, 6–10, and 12, and instituted an *inter partes* review of those claims. Paper 12 (“Inst. Dec.”). Patent Owner filed a Patent Owner Response (Paper 18, “PO Resp.”) and a Motion to Amend (Paper 20), requesting cancellation of claims 1–3, 7–10, and 12. Petitioner filed a Reply to Patent Owner’s Response. Paper 26 (“Reply”). An oral hearing was held before the Board. Paper 39.

We issue this Final Written Decision pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. In this Decision, we grant Patent Owner’s Motion to Amend and order cancellation of claims 1–3, 7–10, and 12. Petitioner’s challenge to claim 6 remains for our consideration. Having considered the record before us, we conclude Petitioner has shown by a preponderance of the evidence that claim 6 of the ’430 patent is unpatentable. *See* 35 U.S.C. § 316(e).

I. BACKGROUND

A. RELATED PROCEEDING

The parties assert the ’430 patent is the subject of a proceeding before the International Trade Commission. Pet. 1; Paper 8, 2.

B. THE ’430 PATENT

The ’430 patent is directed to using an imaging device for radiation therapy. Ex. 1001, 1:14–16. The Specification describes a need for

“identifying the precise location of the target volume immediately prior to a dose of therapeutic radiation,” and, to that end, discloses a “cone beam computed tomography radiotherapy simulator and treatment machine.” *Id.* at 1:24–26, 52–53.

Figure 3 is reproduced, in part, below:

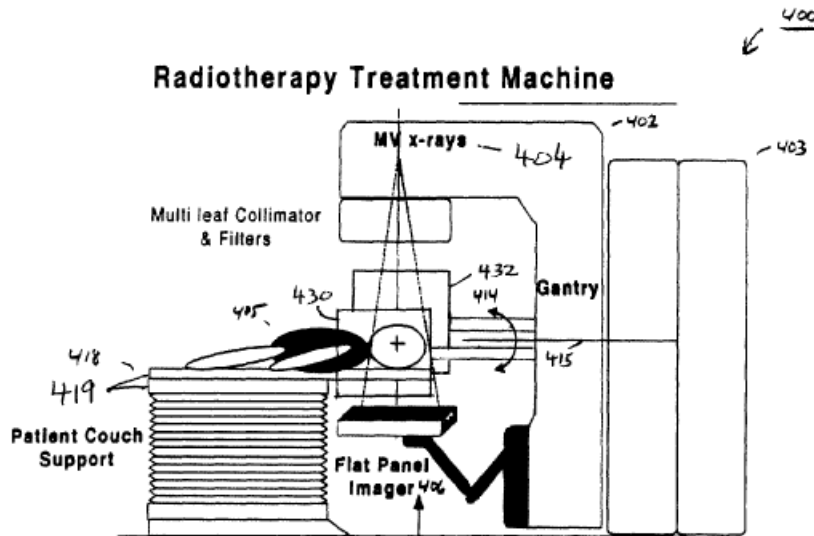


Figure 3 depicts the ’430 patent’s clinical treatment machine. *Id.* at 5:16–17.

The Specification describes the machine as follows:

The clinical treatment machine 400 includes a rotatable gantry 402 pivotably attached to a drive stand 403. A cone-beam CT radiation source 404 and a flat panel imager 406 oppose each other and are coupled to the rotatable gantry 402. . . .

A treatment couch 418 is positioned adjacent to the gantry 402 to place the patient and the target volume within the range of operation for the radiation source 404 and the imager 406.

Id. at 5:25–35. The Specification describes that “[the] gantry rotates around the patient while the radiation from the cone-beam CT radiation source impinges the flat-panel imager.” *Id.* at 2:60–63 (reference numerals omitted). “The gantry rotates and collects image data until a computer can

calculate a representation of the patient and the target volume.” *Id.* at 2:62–64 (reference numerals omitted). Then, “a treatment plan may be generated from the collected image data . . . to apply a radiation dose to a target volume” while minimizing unwanted radiation to healthy tissue and critical structures. *Id.* at 2:67–3:6.

C. CLAIMS

Claims 1 and 6 recite as follows:

1. An apparatus, comprising:

logic configured to modify a treatment plan for a target volume, the logic comprising at least one of hardwired logic and a programmable computer component;

a rotatable gantry;

a cone-beam radiation source coupled to the rotatable gantry; and

a flat-panel imager coupled to the rotatable gantry, wherein the flat-panel imager is operable to capture image projection data to generate cone-beam computed tomography (CT) volumetric image data capable of being used by the logic to modify a treatment plan for a target volume.

6. The apparatus of claim 1, further comprising a translatable treatment couch coupled to the rotatable gantry via a communications network, wherein the translatable treatment couch is capable of movement in three planes plus angulation.

Ex. 1001, 8:63–9:8, 9:27–30.

D. INSTITUTED GROUNDS OF UNPATENTABILITY

We instituted *inter partes* review on the following grounds of unpatentability.

Reference(s)	Basis	Challenged Claims
Jaffray MICCAI 2001 ¹	§§ 102(a), (b)	1, 6–10, 12
Jaffray MICCAI 2001	§ 103(a)	1, 6–10, 12
Jaffray MICCAI 2001 and Jaffray June 2000 ²	§ 103(a)	2, 3
Jaffray MICCAI 2001 and Jaffray JRO 1999 ³	§ 103(a)	7, 8
Jaffray Publication ⁴	§§ 102(b), 103(a)	1–3, 6–10, 12

Inst. Dec. 21–22.

II. MOTION TO AMEND

Patent Owner filed a Motion to Amend, requesting cancellation of claims 1–3, 7–10, and 12, without proposing any substitute claims. Paper 18, 1. Petitioner did not file an opposition to the Motion. We grant the unopposed Motion, and, accordingly, do not address further claims 1–3, 7–

¹ Jaffray et al., *Image Guided Radiotherapy of the Prostate*, MICCAI 2001, LNCS 2208 1075–80 (2001) (Ex. 1021, “Jaffray MICCAI 2001”).

² Jaffray et al., *Cone-Beam Computer Tomography with a Flat-Panel Imager: Initial Performance Characterization*, 27 Medical Physics 1311–23 (2000) (Ex. 1009, “Jaffray June 2000”).

³ Jaffray et al., *A Radiographic and Tomographic Imaging System Integrated into a Medical Linear Accelerator for Localization of Bone and Soft-Tissue Targets*, 45 INT. J. RADIATION ONCOLOGY BIOL. PHYS. 773–789 (1999) (Ex. 1007, “Jaffray JRO 1999”).

⁴ International Publication No. WO 01/60236 A2 (Pub. Aug. 23, 2001) (Ex. 1025, “Jaffray Publication”).

10, or 12. Below, we address only the instituted grounds for claim 6, the only uncanceled claim remaining in this *inter partes* review.

III. ANALYSIS

A. PRINCIPLES OF LAW

Petitioner bears the burden of proving unpatentability of the challenged claims, and the burden of persuasion never shifts to Patent Owner. *Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015). To prevail, Petitioner must establish the facts supporting its challenge by a preponderance of the evidence. 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d).

To anticipate under 35 U.S.C. § 102, a prior art reference must disclose every limitation of the claimed invention, either explicitly or inherently. *In re Schreiber*, 128 F.3d 1473, 1477 (Fed. Cir. 1997). A patent claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious to a person of ordinary skill in the art at the time the invention was made. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). Obviousness is resolved based on underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) objective evidence of nonobviousness, i.e., secondary considerations. *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

B. CLAIM CONSTRUCTION

1. Applicable Standard

The Board interprets claims using the “broadest reasonable construction in light of the specification of the patent in which [they] appear[.]” 37 C.F.R. § 42.100(b). We presume a claim term carries its “ordinary and customary meaning,” which is “the meaning that the term would have to a person of ordinary skill in the art in question” at the time of the invention. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). We construe only those claim terms necessary to resolve the controversy. *See Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

2. “communications network”

Patent Owner asserts “[a] communications network is ‘a communication system that facilitates communication between many devices and that uses a networking protocol to selectively route messages to their intended devices’.” PO Resp. 8. In Reply, Petitioner proposes a broader construction: “a link between two or more components of the radiation treatment system that allows information to be shared between them.” Reply 5.

In our Final Written Decision in *Elekta, Inc. v. Varian Medical Systems, Inc.*, IPR2015-01401, Paper 56 (“IPR2015-01401 FWD”), we construed the same term based on nearly identical arguments and substantially the same evidence. *See* IPR2015-01401 FWD 7–8. In our Decision, we rejected the same argument Patent Owner presents in this case—that a “communications network” requires a networking protocol to selectively route messages to their intended devices. *See id.* We did so

because neither the term's plain language nor the specification⁵ supported imposing such a requirement. *See id.* For the same reasons explained in IPR2015-01401, we maintain our agreement with Petitioner—under the broadest reasonable construction, a communications network is simply a link between two or more components of the radiation treatment system that allows information to be shared between them.

C. ASSERTED PRIOR ART

1. Jaffray MICCAI 2001 (Ex. 1021)

Jaffray MICCAI 2001 is a nonpatent article titled “Image Guided Radiotherapy of the Prostate.” Ex. 1021, 1075. Jaffray MICCAI 2001 published in October 2001 in the journal Lecture Notes in Computer Science and is prior art under pre-AIA 35 U.S.C. §§ 102(a) and (b). Pet. 11. Jaffray MICCAI 2001's Figure 1(a) is reproduced below.

⁵ IPR2015-01401 addressed related U.S. Patent No. 7,945,021 (“the ’021 patent”). The ’430 patent at issue in this case is a continuation of application No. 10/324,227, which issued as the ’021 patent.



Figure 1(a) depicts a “[p]rototype cone beam CT scanner mounted on the gantry of a commercial medical linear accelerator,” including “[a] diagnostic X-ray tube (right) and a flat panel imager (left) [that] have been added.” *Id.* at 1076. Under “Material and Methods,” Jaffray MICCAI 2001 describes the following:

A cone beam CT scan will be acquired on the treatment machine for each treatment fraction (Fig. 1). This 3D CT data set is analyzed automatically to localize the prostate and the treatment prescription is adapted to match the actual position and orientation of the prostate. Finally, the treatment is delivered.

Id.

2. The Jaffray Publication (Ex. 1025)

The Jaffray Publication is International Publication No. WO 01/60236, published August 23, 2001, and is prior art under pre-AIA

35 U.S.C. § 102(b). Ex. 1025, Elekta_000002363; Pet. 14. The reference is titled “Cone Beam Comput[ed] Tomography with a Flat Panel Imager” and discloses “[a] radiation therapy system that includes a radiation source that moves about a path and directs a beam of radiation towards an object and a cone-beam computer tomography system.” Ex. 1025, Elekta_000002363. The reference describes the system also includes “an x-ray source that emits an x-ray beam in a cone-beam form towards an object to be imaged” and “an amorphous silicon flat-panel imager . . . [for] providing an image of the object.” *Id.* at Elekta_000002363.

D. INSTITUTED GROUNDS OF UNPATENTABILITY

1. Anticipation of Claim 6 Based on Jaffray MICCAI 2001

Petitioner contends Jaffray MICCAI 2001 anticipates claim 6. Pet. 15–16, 19–24. Based on our review of the arguments and evidence in the Petition, Response, and Reply, we determine Petitioner has demonstrated, by a preponderance of the evidence, Jaffray MICCAI 2001 anticipates claim 6, as explained below.

a. Disputed Limitation

i. Jaffray MICCAI 2001 Teaches “a translatable treatment couch coupled to the rotatable gantry via a communications network”

Claim 6 requires “a translatable treatment couch coupled to the rotatable gantry via a communications network.” As Petitioner explains, the linear accelerator in Jaffray MICCAI 2001 is an Elekta SL-20. Pet. 16 (citing Ex. 1021, 1076; Ex. 1026 ¶ 167), 24 (citing Ex. 1021, 1076, Fig. 1; Ex. 1026 ¶¶ 156, 167). A technical note describing the SL-20 explains as follows: “The hardware/software interaction of the SL-20 makes it particularly suitable for automated data collection. Communication between the control processor and the accelerator, gantry and patient couch is

handled by a pair of high-speed serial links. These are daisy-chained through three separate control areas distributed throughout the machine.” Ex. 1015, 220. “[R]ecourse to extrinsic evidence is proper to determine whether a feature, while not explicitly discussed, is necessarily present in a reference.” *Telemac Cellular Corp. v. Topp Telecom, Inc.*, 247 F.3d 1316, 1328 (Fed. Cir. 2001). In light of Exhibit 1015, we agree with Petitioner one skilled in the art would understand Jaffray MICCAI 2001’s translatable treatment couch and rotatable gantry are coupled via a communications network—i.e., a link between the two components that allows information to be shared between them. See Pet. 24 (citing Ex. 1021, 1076, Fig. 1; Ex. 1015, 220; Ex. 1026 ¶¶ 156, 167); see also Reply 7–12; Ex. 1031 ¶¶ 19–29.

Patent Owner does not dispute one skilled in the art would recognize Jaffray MICCAI 2001 employs an Elekta SL-20 that has a treatment couch and rotatable gantry that communicate via high-speed serial links. See PO Resp. 27–28; Ex. 2003 ¶¶ 87–89. Instead, Patent Owner relies on its proffered construction of communications network, and asserts Jaffray MICCAI 2001 is deficient because “[h]igh speed serial links alone do not route messages using network protocols.” PO Resp. 27. We find Patent Owner’s argument unpersuasive because, as explained above, we do not construe a communications network to require a networking protocol or selectively routing messages. Thus, we find one skilled in the art would understand Jaffray MICCAI 2001 includes a translatable treatment couch coupled to the rotatable gantry via a communications network, as claim 6 requires.

b. Unchallenged Limitations

Petitioner contends Jaffray MICCAI 2001 discloses the remaining, unchallenged limitations of claim 6. *See* Pet. 15–16; 19–24. Patent Owner does not address the merits of Petitioner’s assertions regarding the remaining limitations. *See* PO Resp. 21–28. We agree with Petitioner’s assertions, as outlined below.

Petitioner has shown Jaffray MICCAI 2001 discloses “An apparatus, comprising: logic configured to modify a treatment plan for a target volume, the logic comprising at least one of hardwired logic and a programmable computer component,” as claim 6 requires. *See* Pet. 15–16, 19–22 (citing Ex. 1021, Abstract, 1076–78, Fig. 1; Ex. 1026 ¶¶ 154, 159–163). Petitioner has shown Jaffray MICCAI 2001 discloses also “a rotatable gantry” and a cone-beam radiation source coupled to the rotatable gantry.” *See id.* at 15–16, 22 (citing Ex. 1021, 1076, Fig. 1; Ex. 1026 ¶¶ 155, 156). Petitioner has shown Jaffray MICCAI 2001 discloses “a flat-panel imager coupled to the rotatable gantry, wherein the flat-panel imager is operable to capture image projection data to generate cone-beam computed tomography (CT) volumetric image data capable of being used by the logic to modify a treatment plan for a target volume.” *See id.* at 15–16, 22–24 (citing Ex. 1021, Abstract, 1076, 1077, Fig. 1; Ex. 1026 ¶¶ 156, 160–162). In addition, Petitioner has shown Jaffray MICCAI 2001 discloses a translatable treatment couch that “is capable of movement in three planes plus angulation.” *See id.* at 24 (citing Ex. 1021, 1076, Fig. 1; Ex. 1026 ¶¶ 156, 167).

c. Conclusion

For these reasons, having considered the parties' contentions and supporting evidence, we determine Petitioner has demonstrated, by a preponderance of the evidence, claim 6 is unpatentable under 35 U.S.C. §§ 102(a) and (b) over Jaffray MICCAI 2001.

2. Obviousness of Claim 6 Based on Jaffray MICCAI 2001

Petitioner asserts "to the extent [claim 6 is] not found to be anticipated by Jaffray MICCAI 2001, [claim 6] would have been obvious in view of Jaffray MICCAI 2001." Pet. 27. In light of our findings on anticipation based on Jaffray MICCAI 2001, and absent any assertions of secondary considerations supporting non-obviousness, we are persuaded Petitioner has demonstrated by a preponderance of the evidence that the subject matter of claim 6 would have been obvious over Jaffray MICCAI 2001. *See In re McDaniel*, 293 F.3d 1379, 1385 (Fed. Cir. 2002) ("It is well settled that anticipation is the epitome of obviousness."); *cf. Cohesive Techs., Inc. v. Waters Corp.*, 543 F.3d 1351, 1364 (Fed. Cir. 2008) (distinguishing anticipation from obviousness because "obviousness requires analysis of secondary considerations of nonobviousness, while secondary considerations are not an element of a claim of anticipation").

3. Anticipation of Claim 6 Based on the Jaffray Publication

Petitioner contends the Jaffray Publication anticipates claim 6. Pet. 41–43, 44–45, 47–52, 53. Based on our review of the arguments and evidence in the Petition, Response, and Reply, we determine Petitioner has not demonstrated, by a preponderance of the evidence, the Jaffray Publication anticipates claim 6, as explained below.

a. *The Jaffray Publication Does Not Teach “a translatable treatment couch coupled to the rotatable gantry via a communications network”*

Claim 6 requires “a translatable treatment couch coupled to the rotatable gantry via a communications network.” Petitioner argues the Jaffray Publication necessarily discloses this feature because it teaches “the use of a ‘computer controlled treatment table 443 for correction of lesion localization errors.’” Pet. 44 (quoting Ex. 1025, 42:5–6). In addition, according to Petitioner’s expert, Dr. Hamilton, one skilled in the art would understand the Jaffray Publication discloses this feature because it was “standard for computer systems . . . to exchange data via a communications network with linear accelerators to monitor and record the couch and gantry positions to ensure that their positions matched the treatment plan by interlocking (preventing) radiation beam delivery if they did not match.” Ex. 1026 ¶ 260.

We agree with Patent Owner that using a computer-controlled treatment couch does not necessarily mean the treatment couch is connected to the gantry via a communications network, as claim 6 requires. See PO Resp. 28. As Patent Owner explains, controlling the couch with a computer “says nothing about how, if at all, the table would be coupled to the rotatable gantry.” *Id.* In addition, Petitioner’s standard-feature argument, even if correct, is not enough to show the Jaffray Publication *necessarily* discloses the disputed communications network feature. See *Rexnord Indus., LLC v. Kappos*, 705 F.3d 1347, 1355 (Fed. Cir. 2013) (explaining that “anticipation by inherent disclosure is appropriate only when the reference discloses prior art that must necessarily include the unstated limitation”). Thus, we find Petitioner has not shown the Jaffray Publication expressly or inherently discloses “a translatable treatment couch coupled to the rotatable gantry via

a communications network,” as claim 6 requires, and consequently has not met its burden to show the Jaffray Publication anticipates claim 6.

4. Obviousness of Claim 6 Based on the Jaffray Publication

Petitioner asserts that even if the Jaffray Publication does not anticipate claim 6, claim 6 would have been obvious over the Jaffray Publication. Pet. 58. Although Petitioner argues several claim features would have been obvious, Petitioner does not include claim 6’s limitation requiring a “translatable treatment couch coupled to the rotatable gantry via a communications network,” in the Petition’s obviousness analysis. See Pet. 58–60. Thus, like its anticipation challenge based on the Jaffray Publication, Petitioner’s obviousness challenge relies on the Jaffray Publication for teaching the disputed communications-network element. As a result, Petitioner’s failure to show the Jaffray Publication teaches “a translatable treatment couch coupled to the rotatable gantry via a communications network” is fatal to its obviousness challenge to claim 6. See *Par Pharm., Inc. v. Twi Pharm., Inc.*, 773 F.3d 1186, 1194 (Fed. Cir. 2014) (noting that a party alleging obviousness has a “burden to prove that all claimed limitations are disclosed in the prior art”).

We note that in Reply, Petitioner makes an alternative argument that even if the Jaffray Publication does not disclose the claimed communications network, including one would have been obvious to a skilled artisan. See Reply 17 (asserting that “even assuming that the disclosed computer control system of the Jaffray Publication does not anticipate the claimed communications network, it renders that network obvious by connecting the gantry, couch, and other system components to a single control computer”). We decline to reach this argument, however,

because Petitioner raised it for the first time in its Reply. *See* 37 C.F.R. § 42.104(b)(5) (requiring that a petition must identify “[t]he supporting evidence relied upon to support the challenge and the relevance of the evidence to the challenge raised, including identifying specific portions of the evidence that support the challenge” and explaining that “[t]he Board may exclude or give no weight to the evidence where a party has failed to state its relevance or to identify specific portions of the evidence that support the challenge”).

IV. CONCLUSION

Based on our review of the arguments and evidence in the Petition, Response, and Reply, we determine Petitioner has shown, by a preponderance of the evidence, claim 6 is unpatentable under 35 U.S.C. §§ 102(a), 102(b), and 103(a) over Jaffray MICCAI 2001. Petitioner, however, has not shown claim 6 is unpatentable under 35 U.S.C. § 102(b) or § 103(a) over the Jaffray Publication.

V. PETITIONER’S CHALLENGE TO PATENT OWNER’S DECLARANT

Petitioner argues we should give no weight to Dr. Mutic’s testimony in light of Dr. Mutic’s “long professional history with Patent Owner, involving substantial monetary compensation.” Reply 19. According to Petitioner, “Dr. Mutic’s prior, and likely future, compensation from Patent Owner renders his expert testimony biased and questionable.” *Id.* at 19–20.

We see nothing wrong or unusual with Patent Owner compensating Dr. Mutic for work in this case, or in future ones. In assessing the merits of this case, we have considered the proffered testimony from Dr. Mutic, as well as Petitioner’s Declarant Dr. Hamilton, and accorded weight based on

the testimony's substantive persuasiveness. We see no reason why Dr. Mutic's past compensation—or his speculative future compensation—makes his testimony unhelpful in understanding the evidence. *See* Fed. R. Evid. 702(a).

VI. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that Petitioner has shown by a preponderance of the evidence that claim 6 of the '430 patent is unpatentable;

FURTHER ORDERED that Patent Owner's Motion to Amend (Paper 20) is *granted*;

FURTHER ORDERED that claims 1–3, 7–10, and 12 of the '430 patent shall be *anceled*; and

FURTHER ORDERED that, because this is a Final Written Decision, the parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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