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Paper 14
Entered: May 6, 2016

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 IPR2016-00187
Patent 7,826,592 B2

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

KIM, *Administrative Patent Judge*.

DECISION
Decision Granting *Inter Partes* Review
37 C.F.R. § 42.108

I. INTRODUCTION

A. Background

Varian Medical Systems, Inc. ("Petitioner") filed a Petition to institute an *inter partes* review of claims 25–29 and 35–42 of U.S. Patent No. 7,826,592 B2 (Ex. 1001, "the '592 Patent"). Paper 1 ("Pet."). William Beaumont Hospital ("Patent Owner") filed a Preliminary Response. Paper 11 ("Prelim. Resp.").

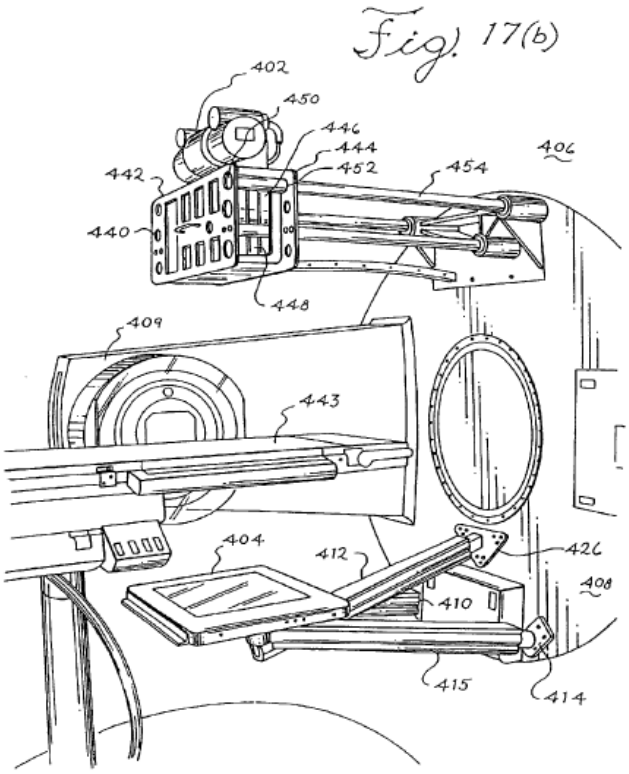
We have jurisdiction under 35 U.S.C. § 314(a), which provides that an *inter partes* review may not be instituted unless the information presented in the Petition shows "there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition." Upon consideration of the Petition and Preliminary Response, we are persuaded that Petitioner has met its burden of showing a reasonable likelihood that claims 25–29 and 35–42 are unpatentable. Accordingly, we institute a trial as to those claims.

B. Related Proceedings

Petitioner and Patent Owner identify the following district court proceedings concerning the '592 Patent: *Elekta Ltd. and William Beaumont Hospital v. Varian Medical Systems, Inc.*, Case No. 2:15-cv-12169-AC-MKM (E.D. Mich.). Pet. 1; Paper 9, 1. Patent Owner identifies further the following *inter partes* reviews directed to U.S. Patent No. 6,842,502 B2, to which the '592 Patent claims priority: IPR2016-00160, IPR2016-00162, IPR2016-00163, and IPR2016-00166. Paper 9, 2. Patent Owner identifies additionally the following *inter partes* reviews directed to U.S. Patent No. 7,471,765 B2, to which the '592 Patent claims priority: IPR2016-00169, IPR2016-00170, and IPR2016-00171. *Id.*

C. The ’592 Patent

The ’592 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, 1:29–34. 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. Ex. 1001, 6:60–63.



Specifically, wall-mounted cone beam computerized tomography system 400 includes an x-ray source, such as x-ray tube 402, and flat-panel imager 404 mounted on gantry 406. Ex. 1001, 19:53–58. X-ray tube 402 generates beam of x-rays 407 in a form of a cone or pyramid. Ex. 1001, 19:58–61. Flat-panel imager 404 is mounted to a face of flat, circular rotatable drum 408 of gantry 406. Ex. 1001, 20:11–14. X-ray beam 407 produced by x-ray

tube 402 is approximately orthogonal to treatment beam 411 produced by radiation therapy source 409. Ex. 1001, 20:14–16. Attachment of flat-panel imager 404 is accomplished by imager support system 413, which includes arms 410, 412, 415 that are attached to plate 424. Ex. 1001, 20:17–19.

Figures 20(a)–(b) (below) show a front view of a wall-mounted cone beam computerized tomography system of Figure 17, but employing another mechanism for attaching flat-panel imager 404. Ex. 1001, 7:6–9.

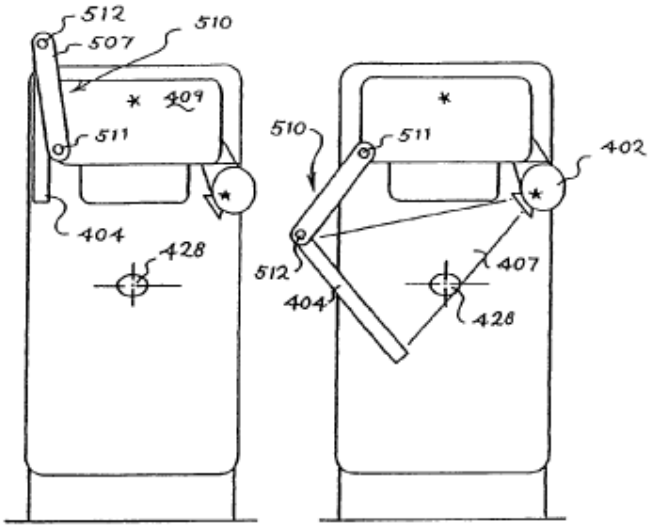


Fig. 20(a) Fig. 20(b)

Specifically, imager support system 507 includes pivoting arm 510 that has one end 511 pivotably attached a lower corner of radiation therapy source 409, and another end 512 pivotably attached to an end of flat-panel imager 404. Ex. 1001, 21:33–38. Using this mechanism, flat-panel imager 404 is movable from a retracted position, as shown in Figure 20(a), to an extended position, as shown in Figure 20(b), and vice versa. Ex. 1001, 21:38–41.

D. Illustrative Claims

Petitioner challenges claims 25–29 and 35–42 of the ’592 Patent. Claims 25 and 35 are the only independent claims at issue, and are reproduced below:

> 25. An imaging system comprising:
>
> a rotating drum;
>
> an x-ray source that emits x-rays towards an object, wherein said x-ray source is attached to said rotating drum;
>
> an imager that receives x-rays from said object based on said emitted x-rays and forms an image of said object;
>
> an imager support system that attaches said imager to said rotating drum, wherein said imager support system comprises: a pivoting arm that has one end pivotably attached to said rotating drum and another end pivotably attached to said imager.
>
> 35. A method of adding an auxiliary imaging system to an existing radiation therapy system, said method comprising:
>
> providing an existing radiation therapy system that comprises a radiation source that is supported on a support structure; and
>
> attaching an imager that does not directly face said radiation source to said support structure.

Ex. 1001, 29:34–45.

> 35. A method of adding an auxiliary imaging system to an existing radiation therapy system, said method comprising:
>
> providing an existing radiation therapy system that comprises a radiation source that is supported on a support structure; and
>
> attaching an imager that does not directly face said radiation source to said support structure.

Ex. 1001, 30:26–32.

E. Asserted Grounds of Unpatentability

Petitioner challenges claims 25–29 and 35–42 on the following grounds.

Reference(s)	Basis	Challenged Claim(s)
Jaffray '97[1] and Span[2]	§ 103(a)	25–28
Jaffray '97, Span, and Antonuk[3]	§ 103(a)	29
Jaffray '97 and Holmström[4]	§ 103(a)	25–28
Jaffray '97, Holmström, and Antonuk	§ 103(a)	29
Jaffray '97	§ 102(b)	35, 40–42
Jaffray '97 and Lim[5]	§ 103(a)	36–39

II. ANALYSIS

A. Claim Construction

As a step in our analysis for determining whether to institute a review, we determine the meaning of the claims for purposes of this Decision. In an *inter partes* review, a claim in an unexpired patent shall be given its broadest reasonable construction in light of the specification of the patent in which it appears. 37 C.F.R. § 42.100(b); *see also In re Cuozzo Speed Techs., LLC*, 793 F.3d 1268, 1278 (Fed. Cir. 2015) ("We conclude that Congress

[1] D.A. Jaffray and J.W. Wong, *Exploring "Target of the Day" Strategies for a Medical Linear Accelerator With Conebeam-CT Scanning Capability*, PROCEEDINGS OF THE XIITH INTERNATIONAL CONFERENCE ON THE USE OF COMPUTERS IN RADIATION THERAPY, MEDICAL PHYSICS PUBLISHING, pp. 172-75 (May 27-30, 1997) (Ex. 1004, "Jaffray '97")
[2] U.S. Patent No. 4,459,485, issued July 10, 1984 (Ex. 1005).
[3] U.S. Patent No. 5,262,649, issued Nov. 16, 1993 (Ex. 1006).
[4] U.S. Patent No. 3,784,837, issued Jan. 8, 1974 (Ex. 1007).
[5] WO 91/06876, pub. May 16, 1991 (Ex. 1008).

implicitly approved the broadest reasonable interpretation standard in enacting the AIA."), *cert. granted sub nom. Cuozzo Speed Techs., LLC v. Lee*, 84 U.S.L.W. 3218 (U.S. Jan. 15, 2016) (No. 15-446). Under the broadest reasonable construction standard, claim terms are given their ordinary and customary meaning, as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). Any special definition for a claim term must be set forth in the specification with reasonable clarity, deliberateness, and precision. *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994). We must be careful not to read a particular embodiment appearing in the written description into the claim if the claim language is broader than the embodiment. *In re Van Geuns*, 988 F.2d 1181, 1184 (Fed. Cir. 1993). Only terms which are in controversy need to be construed, and then only to the extent necessary to resolve the controversy. *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

For the purposes of this Decision, only the following terms require construction.

1. "pivotably attached"

Independent claim 25 recites "a pivoting arm that has one end *pivotably attached* to said rotating drum and another end *pivotably attached* to said imager" (emphasis added). Petitioner asserts that "pivotably attached" should be construed "as connected in such a way as to enable relative rotation between the connected objects." Pet. 18–19 (citing Exs. 1001, 1012). Patent Owner disagrees insofar as Petitioner's construction can be said to cover "where the imager simply rotates around the face of the rotating drum in its same plane of rotation," and instead

asserts that a proper construction is "connected to allow hinged movement toward and away from the face of the rotating drum." Prelim. Resp. 13–16 (citing Ex. 1001). In other words, Patent Owner asserts that there is a distinction between (1) two arms, each arm having some length, connected at one end of each arm, where the non-attached ends of each arm move toward and away from each other about that connection, and (2) a record rotating on a record player, where the relative positions of the record and record player are static, even during rotation.

Upon considering both constructions, we determine that Petitioner's and Patent Owner's constructions are not necessarily in conflict. Specifically, we discern that Petitioner's use of the term "relative" was meant to convey that more than mere rotation between two objects was necessary in order to be considered "pivotably." Nevertheless, we agree with Patent Owner that its construction is more precise in differentiating "rotating" and "pivoting," both of which are recited in independent claim 25, and, thus, should be construed to have different scopes. We agree further that the cited portions of the '592 Patent support Patent Owner's distinction between "rotating" and "pivoting." We disagree, however, that "the face of the rotating drum" has a place in the proper construction of "pivotably attached," as one of the recited connections that are "pivotably attached" is between the pivoting arm and the imager, which has nothing to do with the drum. Accordingly, on this record, we construe "pivotably attached" as "connected to allow hinged movement toward and away from each other," which is to be distinguished from mere rotation of two objects relative to each other.

2. "imager"

Independent claim 25 recites "an imager that receives x-rays from said object based on said emitted x-rays and forms an image of said object." Independent claim 35 recites "attaching an imager that does not directly face said radiation source to said support structure." Patent Owner asserts that "imager" in both claims should be construed as "detectors that receive x-rays and form images." We agree to an extent.

For independent claim 25, we agree that "imager" is limited to "x-rays," because the claim itself limits that "imager" to "x-rays" by reciting expressly "an imager that receives x-rays from said object based on said emitted x-rays and forms an image of said object."

The same, however, is not true for independent claim 35, which does not include that limitation. Indeed, independent claim 35 does not even recite "x-ray" at all, instead reciting "radiation source." Furthermore, if we go strictly by claim language, it is unclear whether that "radiation source" is even used to form an image on the recited "imager," as independent claim 35 recites only a spatial—not a functional—relationship between the recited "radiation source" and "imager." When we consider the overall context of independent claim 35, however, as well as the portions of the '592 Patent cited by Patent Owner, we are persuaded that the recited "imager" should be construed as a "detector that receives radiation and forms an image." We are unpersuaded, however, that the radiation in that construction of "imager," recited in independent claim 35, is limited to x-rays.

B. Claims 25–28 as Unpatentable over Jaffray '97 in view of Span

Petitioner asserts that a combination of Jaffray '97 and Span renders obvious claims 25–28. Pet. 19–29 (citing Exs. 1003–1005). Patent Owner disagrees. Prelim. Resp. 19–22 (citing Exs. 1003–1005, 1008).

1. Jaffray '97

Jaffray '97 discloses a conebeam computed tomography (CBCT) scanner for integration with a medical linear accelerator. Ex. 1004, 4. Figure 1 of Jaffray '97 is set forth below.

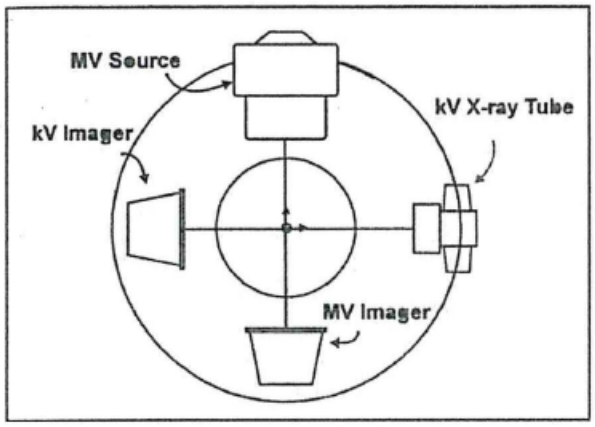


Figure 1 is a schematic view of a dual-beam system used for CBCT. Ex. 1004, 5. Two fluoroscopic imaging systems, kV imager and MV imager, are attached to a gantry, and are configured to receive exposure from an opposing kV x-ray tube and MV source, respectively. Ex. 1004, 4–5. The gantry rotates continuously. Ex. 1004, 5.

2. Span

Span discloses a radiation apparatus where an element to be positioned is supported by a balance suspension system. Ex. 1005, 1:7–11. Figure 1a of Span is set forth below.

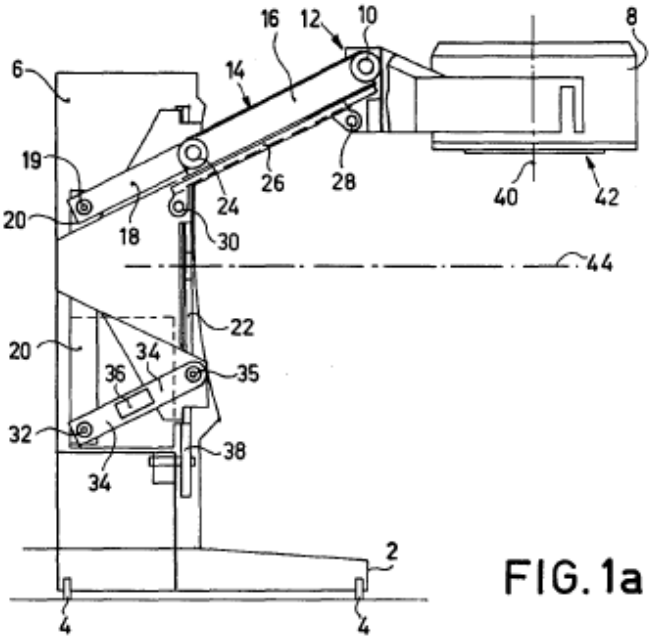


FIG. 1a

Figure 1 of Span is a perspective view of a radiation apparatus where base 2 supports housing 6 and accommodates a suspension system for gamma camera 8. Ex. 1005, 2:29–34. Specifically, gamma camera 8 is suspended from arm 14 of supporting device 12 via pivot 10. Ex. 1005, 2:35–37.

3. Analysis

Petitioner asserts that a combination of Jaffray '97 and Span renders obvious claims 25–28. Pet. 19–29. For example, independent claim 25 recites "a rotating drum." Petitioner cites Jaffray '97 for disclosing a gantry that is rotated. Independent claim 25 recites further "an x-ray source that emits x-rays towards an object, wherein said x-ray source is attached to said rotating drum." Petitioner cites Jaffray '97 for disclosing a kV x-ray tube. Independent claim 25 recites additionally "an imager that receives x-rays from said object based on said emitted x-rays and forms an image of said object." Petitioner cites Jaffray '97 for disclosing a kV imager. Independent claim 25 recites also "an imager support system that attaches said imager to said rotating drum, wherein said imager support system comprises: a

pivoting arm that has one end pivotably attached to said rotating drum and another end pivotably attached to said imager." Petitioner cites Span for disclosing arm 14 that is (1) connected to gamma camera 8 via pivot 10, and (2) connected to rotating support ring 22 via pivot 24. For the rationale to modify Jaffray '97 in view of the aforementioned portion of Span, Petitioner asserts the following:

> One of ordinary skill in the art would have been motivated to combine the imaging support structure of Span with the x-ray tomography system of Jaffray '97. In both settings, heavy diagnostic equipment is commonly mounted on a gantry to facilitate movement of the equipment and therefore both settings present similar mounting difficulties. (Balter Decl. ¶ 73.) Although Jaffray '97 teaches mounting one or more detectors to the drum, it does not teach an imager support system pivotably mounted to the drum or the imager. (Ex. 1004 at Fig. 1.) However, Jaffray '97 does suggest that "important characteristics [of the imaging system] include . . . (iii) flexibility of use . . . and, (v) convenience." (Id. at 5.) Span addresses this flexibility and convenience, explaining that, with the disclosed support structure, equipment "can be very easily moved by rotation of the arm 14 about the pivot 24 . . . ." (Ex. 1005 at 2:59–63.) Thus, it would have been obvious to the skilled artisan to apply the known mounting technique of Span to the known x-ray source and imaging techniques of Jaffray '97 with no change in their respective functions and with a reasonable expectation of success. (Balter Decl. ¶¶ 74–75.)

Pet. 27–28. Petitioner provides similar analyses for claims 26–28.

Patent Owner asserts that Petitioner has not explained adequately why one of ordinary skill would look to art unrelated to x-ray imaging (Span) for mounting options for x-ray imaging (Jaffray '97). Prelim. Resp. 19–20. Patent Owner's assertions are misplaced, as not only does paragraph 73 of Dr. Balter's Declaration address this very aspect, but Span itself discloses

that it is a "radiation apparatus" generally (Ex. 1005, 1:7), and that its source and detector may be x-rays. Ex. 1005, 4:3–7.

Patent Owner asserts additionally that Petitioner has not explained adequately why one of ordinary skill would choose Span's mounting option over other mounting options. Prelim. Resp. 19–20. Patent Owner's assertions are misplaced, as obviousness does not require that the modification be the "best" possible modification. So long as the modification is known and has a known advantage, that is all that is required for obviousness. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 491 (2007) ("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 that person's skill.")

Patent Owner asserts further that Petitioner has failed to articulate sufficiently a rationale to modify Jaffray '97 with Span that accounts for the specific mounting deficiencies of the counterweight-based system of Span, especially in view of the fact that Lim identifies several such deficiencies. Prelim. Resp. 20–21. We disagree. Petitioner identifies two intertwined lines of rationale for making the proffered modification: (1) that both Jaffray '97 and Span are directed to similar rotating drum based systems with image detectors, and (2) that Span discloses that with its support structure, equipment "can be very easily moved by rotation of the arm 14 about the pivot 24 . . . ." (Ex. 1005 at 2:59–63). Pet. 27–28 (citing Ex. 1003 ¶¶ 73–74). At this juncture, we are persuaded that such a rationale, and especially the advantage identified explicitly at the aforementioned citation of Span, is sufficient. Furthermore, we note that every modification has

advantages and disadvantages, and on this record, we are unpersuaded that any of the purported disadvantages of Span would have informed one of ordinary skill that the proffered modification was unknown and had no advantages, or that one of ordinary skill would not have been able to weigh the various advantages and disadvantages of the proffered combination, and conclude that the proffered combination was obvious.

3. Conclusion

On this record, we are persuaded that Petitioner has shown a reasonable likelihood that claims 25–28 would have been obvious in view of Jaffray '97 and Span.

C. Dependent Claim 29 as Unpatentable over Jaffray '97 in view of Span and Antonuk

Petitioner asserts that a combination of Jaffray '97, Span, and Antonuk renders obvious dependent claim 29. Pet. 29–32 (citing Exs. 1003–1006). Patent Owner disagrees. Prelim. Resp. 22–23 (citing Exs. 1003–1006). Specifically, dependent claim 29 recites "wherein said imager comprises an amorphous silicon flat-panel imager." Petitioner cites Antonuk for disclosing "[a] thin-film, flat-panel, pixelated detector array serving as a real-time digital imager and dosimeter for diagnostic or megavoltage X rays or gamma rays, including a plurality of photodiodes made of hydrogenated amorphous silicon arrayed in columns and rows upon a glass substrate." Ex. 1006, Abstract. Petitioner provides a rationale for modifying Jaffray '97 by swapping out a kV imager with the "thin-film, flat-panel detector array" of Antonuk. Pet. 31–32.

Patent Owner asserts that Petitioner has not set forth a sufficient rationale for modifying Span in view of Antonuk. Prelim. Resp. 22–23.

Patent Owner's assertions are misplaced, as Petitioner's proffered modification here is Jaffray '97 in view of Antonuk, and not Span in view of Antonuk.

Patent Owner asserts further that Span and Antonuk teach away from each other, as the purpose of Span is a counterweight suspension system to mitigate the "necessarily heavy construction" of the gamma camera, whereas Antonuk is directed to a flat-panel imager that is "far more compact" and "considerably thinner than a bulky XRII unit." Prelim. Resp. 23. In effect, Patent Owner is asserting that there is no need for the suspension system of Span, because the flat-panel imager of Antonuk is already lightweight, and so the proffered modification would be expensive overkill. We are unpersuaded that such expensive overkill is an adequate basis to support a teaching away, at least as applied here, for the fact that the suspension system of Span can handle relatively heavier imagers does not indicate that such a suspension system would not work with the lighter imager of Antonuk. *See Orthopedic Equip. Co., Inc. v. United States*, 702 F.2d 1005, 1013 (Fed. Cir. 1983) ("the fact that the two [prior art disclosures] would not be combined by businessmen for economic reasons is not the same as saying that it could not be done because skilled persons in the art felt that there was some technological incompatibility that prevented their combination. Only the latter fact is telling on the issue of nonobviousness."). To the contrary, we discern the opposite would be true.

On this record, we are persuaded that Petitioner has shown a reasonable likelihood that dependent claims 29 is obvious in view of Jaffray '97, Span, and Antonuk.

D. Claims 25–28 as Unpatentable over Jaffray '97 in view of Holmström

Petitioner asserts that a combination of Jaffray '97 and Holmström renders obvious claims 25–28. Pet. 32–38 (citing Exs. 1003, 1004, 1007). Patent Owner disagrees. Prelim. Resp. 23–26 (citing Exs. 1003, 1004, 1007).

1. Holmström

Holmström discloses an X-ray device having a stand and an X-ray tube mounted upon a bracket which is supported rotatably about a support axis extending perpendicularly to its longitudinal axis. Ex. 1007, 1:2–5. Figure 1 of Holmström is set forth below.

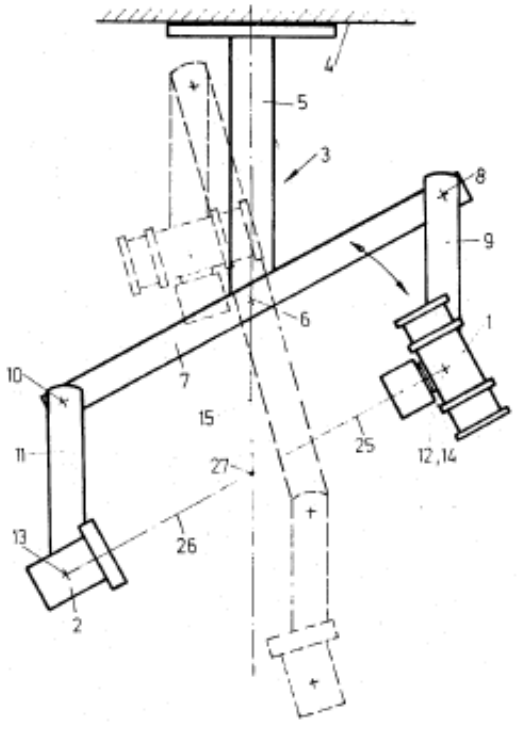


Fig. 1

Figure 1 is a front view of an X-ray examining device with stand 3. Ex. 1007, 2:25–27. Stand 3 includes column 5, bracket 7, and carrying arm 11. Ex. 1007, 2:30–40. X-ray image amplifier 2 is swingable about carrying

arm 11 via horizontal axle 12. Ex. 1007, 2:32–44. Carrying arm 11 swings about bracket 7 via horizontal axle 10. Ex. 1007, 2:32–40.

2. Analysis

Petitioner asserts that a combination of Jaffray '97 and Holmström renders obvious claims 25–28. Pet. 32–38. For example, for most of the limitations of independent claim 25, Petitioner cites Jaffray '97 as corresponding to the same claim limitations as set forth above for the ground based on Jaffray '97 and Span. Independent claim 25 recites further "an imager support system that attaches said imager to said rotating drum, wherein said imager support system comprises: a pivoting arm that has one end pivotably attached to said rotating drum and another end pivotably attached to said imager." Petitioner cites Holmström for disclosing X-ray image amplifier 2 swinging about carrying arm 11 via horizontal axle 12, and carrying arm 11 swinging about bracket 7 via horizontal axle 10. Petitioner provides a rationale for modifying Jaffray '97 in view of the aforementioned portion of Holmström. Pet. 35–36. Petitioner provides similar analyses for claims 26–28.

Patent Owner asserts that Petitioner does not provide an adequate explanation as to why one of ordinary skill would utilize only the X-ray image amplifier 2, bracket 7, and carrying arm 11 of Holmström to the exclusion of other portions of Holmström. We agree. The following is Petitioner's entire analysis concerning the rationale for modifying Jaffray '97 to include that aforementioned portion of Holmström.

> One of ordinary skill in the art would have been motivated to combine the imaging support structure of Holmström with the drum-mounted x-ray tomography system of Jaffray '97. Both references address the use of medical diagnostic imaging on a

> rotating support structure. (Balter Decl. ¶ 102.) Indeed, Holmström explains that the disclosed invention "is equally suitable for use in X-ray therapy and X-ray diagnosis." (Ex. 1007 at 1:35-37.) Although Jaffray '97 teaches mounting one or more detectors to a drum, it does not teach an imager support system pivotably mounted to the drum or the imager. (Ex. 1004 at 4-5, Fig. 1.) However, Jaffray '97 does suggest that "important characteristics [of the imaging system] include . . . (iii) flexibility of use . . . and, (v) convenience." (Id. at 5.) Holmström addresses this concern, explaining that "in X-ray therapy it is sometimes necessary to be able to move the ray source as freely as possible around the patient." (Ex. 1007 at 1:6-8; Balter Decl. ¶ 102.) *Moreover, one of ordinary skill in the art would have recognized that bracket 7 in Holmström, which itself rotates, serves the same function as the rotating drum of Jaffray '97. (Balter Decl. ¶ 102.)* As such, it would have been obvious to a skilled artisan to incorporate the pivotably mounted imager and support system of Holmström to the known x-ray source and imaging techniques of Jaffray '97 with no change in their respective functions and with a reasonable expectation of success. (Balter Decl. ¶¶ 102-103.)

Pet. 37 (emphasis added). The only portion that could plausibly be considered a rationale to implement only a subset of Holmström is the italicized sentence, which alludes to a functional equivalence between bracket 7 of Holmström and the rotating drum of Jaffray '97. We are unpersuaded, however, that "rotate" is sufficient to show adequately why one of ordinary skill would disregard the other portions of Holmström on the end of bracket 7 opposite carrying arm 11, especially when the swinging nature of stand 3 is dependent on the interaction between those elements.

3. Conclusion

On this record, we are unpersuaded that Petitioner has shown a reasonable likelihood that claims 25–28 would have been obvious in view of Jaffray '97 and Holmström.

E. Dependent Claim 29 as Unpatentable over Jaffray '97 in view of Holmström and Antonuk

Petitioner asserts that a combination of Jaffray '97, Holmström, and Antonuk renders obvious dependent claim 29. Pet. 38–41 (citing Exs. 1003, 1004, 1006, 1007). Patent Owner disagrees. Prelim. Resp. 26 (citing Exs. 1003, 1004, 1006, 1007). Petitioner does not cite Antonuk for remedying the aforementioned deficiency of Holmström with respect to independent claim 25, from which claim 29 depends.

On this record, we are unpersuaded that Petitioner has shown a reasonable likelihood that dependent claims 29 is obvious in view of Jaffray '97, Holmström, and Antonuk.

F. Claims 35 and 40–42 as Anticipated by Jaffray '97

Petitioner asserts that Jaffray '97 anticipates claims 35 and 40–42. Pet. 41–45 (citing Exs. 1003, 1004). For example, independent claim 35 recites "providing an existing radiation therapy system that comprises a radiation source that is supported on a support structure." Petitioner cites Jaffray '97 for disclosing a rotating gantry including an MV source. Independent claim 35 recites further "attaching an imager that does not directly face said radiation source to said support structure." Petitioner cites Jaffray '97 for disclosing a kV imager that does not directly face the MV source. Petitioner provides similar analyses for claims 40–42.

On this record, we are persuaded that Petitioner has shown a reasonable likelihood that claims 35 and 40–42 are anticipated by Jaffray '97.

G. Dependent Claims 36–39 as Unpatentable over Jaffray '97 in view of Lim

Petitioner asserts that a combination of Jaffray '97 and Lim renders obvious dependent claim 36–39. Pet. 45–54 (citing Exs. 1003, 1004, 1008). Patent Owner disagrees. Prelim. Resp. 27–28 (citing Exs. 1003, 1004, 1008).

1. Lim[6]

Lim discloses a gantry and pallet assembly including a camera for conducting whole body or single photon emission computed tomography (SPECT) scans. Ex. 1008, 1:3–7. Figure 6 of Lim is set forth below.

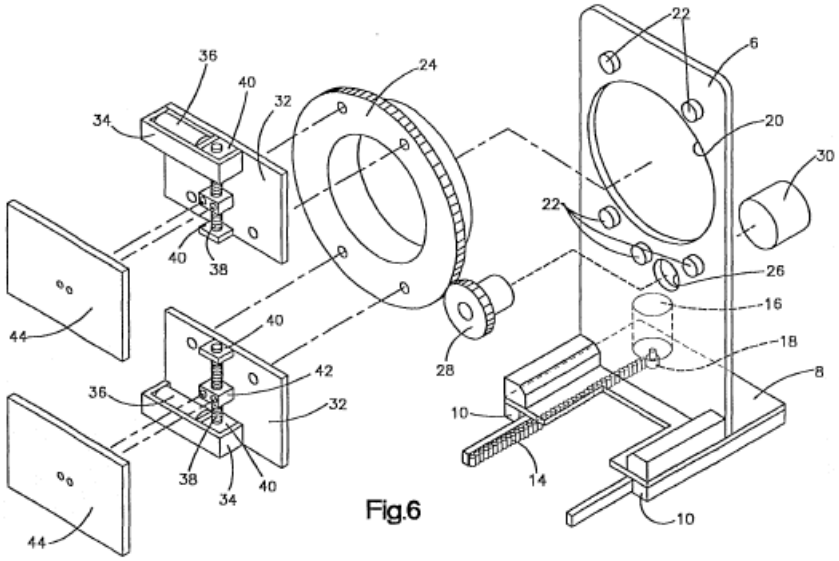


Figure 6 is an exploded view of elements for rotating rotation ring 24, translating gantry 2, and radially translating detectors 46. Ex. 1008, 7:18–20. Detector 46 is mounted to mounting block 42 and radial back plate 32 via detector mounting plate 44. Ex. 1008, 10:18–30. Drive motors 36 cause

[6] We refer to the original pagination of Lim, and not Petitioner's paginations.

mounting block 42 to be radially translated relative to rotation ring 24. Ex. 1008, 10:21–27.

2. Analysis

Petitioner asserts that a combination of Jaffray '97 and Lim renders obvious dependent claim 36–39. Pet. 45–54. For example, dependent claim 36 recites "wherein said attaching comprises: attaching said imager to an imager support system." Petitioner cites Lim for disclosing mounting detector 46 to gantry 2 via mounting plate 44, mounting block 42, radial back plate 32, and rotation ring 24. Dependent claim 36 recites further "forming an opening in said support structure." Petitioner cites Lim for disclosing openings in rotation ring 24. Dependent claim 36 recites additionally "inserting a male member through an opening formed in said imager support system and said opening formed in said support structure." Petitioner cites Lim for disclosing a bolt inserted into openings on radial back plate 32 and rotation ring 24. Dependent claim 36 recites also "attaching said inserted male member to said support structure and said imager support system." Petitioner cites Lim for disclosing attaching a nut to the end of the bolt. Petitioner sets forth a rationale for attaching a kV imager of Jaffray '97 to the gantry of Jaffray '97 via the mounting system of Lim. Pet. 48–49. Petitioner provides similar analysis of claims 37–39.

Patent Owner asserts that Petitioner has not articulated sufficiently why one of ordinary skill would modify the radiation therapy system of Jaffray '97 in view of the diagnostic nuclear imaging system of Lim. Prelim. Resp. 27–28. We disagree. Petitioner identifies two intertwined lines of rationale for making the proffered modification: (1) that both Jaffray '97 and Lim are directed to similar rotating drum based systems with image

detectors, and (2) that Lim's system discloses the advantage of "mounting of a detector to a drum with independent movement capability." Pet. 49 (citing Ex. 1008). At this juncture, we are persuaded that such a rationale, and especially the aforementioned advantage, is sufficient.

Patent Owner asserts additionally that Lim is not directed to the recited "imager." We disagree. As set forth above, we construe "imager," as recited in independent claim 35, as "a detector that receives radiation and forms an image." Lim discloses a camera for conducting whole body or single photon emission computed tomography (SPECT) scans. Ex. 1008, 1:3–7.

3. Conclusion

On this record, we are persuaded that Petitioner has shown a reasonable likelihood that dependent claims 36–39 would have been obvious in view of Jaffray '97 and Lim.

H. Conclusion

On this record, we are persuaded that Petitioner has shown a reasonable likelihood that claims 25–29 and 35–42 are unpatentable. Nothing in this Decision should be taken as a final determination of the patentability of the challenged claims.

III. ORDER

After due consideration of the record before us, and for the foregoing reasons, it is:

ORDERED that pursuant to 35 U.S.C. § 314, an *inter partes* review is hereby instituted as to claims 25–29 and 35–42 of the '592 Patent on the following grounds:

- claims 25–28 as unpatentable under 35 U.S.C. § 103(a) over a combination of Jaffray ’97 and Span;
- claim 29 as unpatentable under 35 U.S.C. § 103(a) over a combination of Jaffray ’97, Span, and Antonuk;
- claims 35 and 40–42 as unpatentable under 35 U.S.C. § 102(b) as anticipated by Jaffray ’97; and
- claims 36–39 as unpatentable under 35 U.S.C. § 103(a) over a combination of Jaffray ’97and Lim;

FURTHER ORDERED that no other grounds are instituted; and

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(a), *inter partes* review of the ’592 Patent is hereby instituted commencing on the entry date of this Order, and pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial.

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