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Paper 13
Entered: July 7, 2016

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

DEXCOWIN GLOBAL, INC.,
Petitioner,

v.

ARIBEX, INC.,
Patent Owner.

Case IPR2016-00440
Patent 7,224,769 C1

Before JONI Y. CHANG, BRIAN J. McNAMARA, and DANIEL J. GALLIGAN, *Administrative Patent Judges*.

GALLIGAN, *Administrative Patent Judge.*

DECISION
Denying Institution of *Inter Partes* Review
35 U.S.C. § 314(a) and 37 C.F.R. § 42.108

I. INTRODUCTION

Dexcowin Global, Inc. ("Petitioner") filed a Petition requesting *inter partes* review of claims 6, 10, 14, 17, 34, 36, 37, 39–53, and 55–64 of U.S. Patent No. 7,224,769 C1 ("the '769 patent"), which issued from reexamination pursuant to Reexamination Request No. 90/012,436. Paper 7 ("Pet.").[1] Aribex, Inc. ("Patent Owner") timely filed a Preliminary Response. Paper 12 ("Prelim. Resp."). We have jurisdiction under 35 U.S.C. § 314 and 37 C.F.R. § 42.4(a).

The standard for instituting an *inter partes* review is set forth in 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."

For the reasons that follow, we deny institution of an *inter partes* review.

A. Real Parties in Interest

Patent Owner identifies Dental Imaging Technologies Corporation as a real party in interest. Paper 11, 1.

B. Related Matters

Petitioner and Patent Owner indicate Petitioner has filed another petition requesting *inter partes* review of U.S. Patent No. 7,496,178 B2 ("the '178 patent"), which claims priority to the provisional application to which the '769 patent purports to claim priority. Pet. 48; Paper 11;

[1] Paper 7 is a Corrected Petition, which Petitioner filed to correct certain defects. *See* Paper 6, 1–2.

IPR2016-00436. Patent Owner indicates Petitioner filed a complaint, on January 8, 2016, for declaratory judgment of non-infringement and invalidity of the '769 patent and the '178 patent in *Dexcowin Global, Inc. v. Aribex, Inc.*, No. CV-16-00143-FMO (C.D. Cal.). Paper 11, 1.

C. '769 Patent

The '769 patent is generally directed to portable x-ray devices. Ex. 1001, 1:11–17. Figures 10 and 12 of the '769 patent are reproduced below:

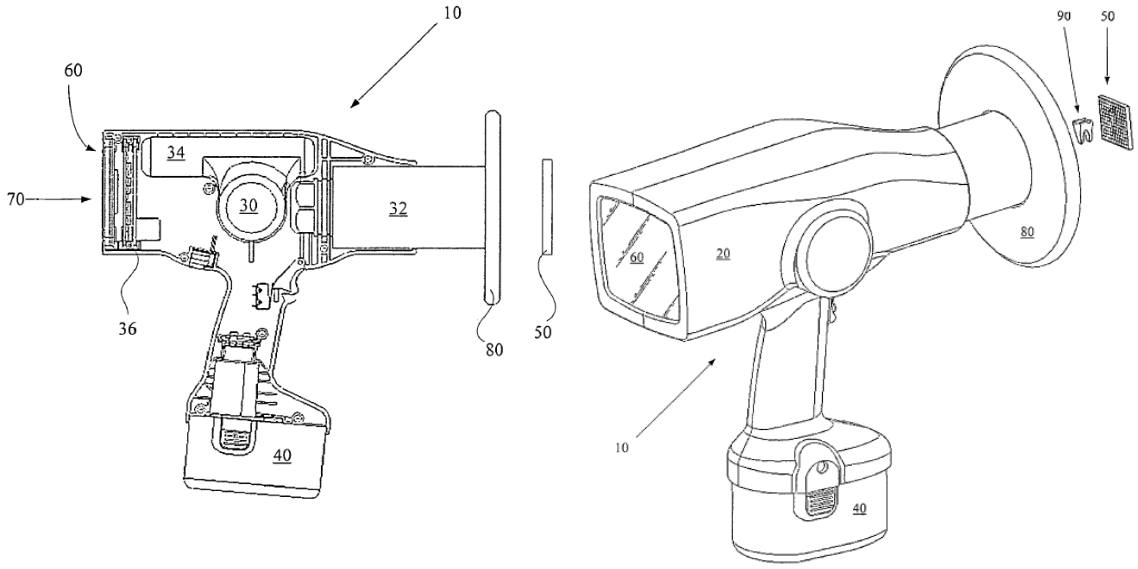

FIGURE 12

FIGURE 10

Figures 10 and 12 depict x-ray device 10 having housing 20, which includes display means 60. *Id*. at 7:8–37. The '769 patent explains that, in the configuration shown in Figures 10 and 12, "the detecting means (CCD sensor 50) is not structurally attached to the x-ray device 10." *Id.* at 7:8–9.

The ’769 patent purports to claim priority to provisional application 60/546,575, which was filed on February 20, 2004. Ex. 1001, 1:6–8. However, as Patent Owner acknowledges, “the failure to file certain drawings with the original PCT application resulted in a break in the priority chain, so the priority date of the ’769 patent is March 21, 2005.” Prelim. Resp. 2–3.

Claim 6 is reproduced below:

> 6. A portable x-ray device, comprising:
> a housing containing an x-ray source and an integrated power system containing an internal power source;
> display means comprising an LCD screen integrated into the housing; and
> detecting means structurally unattached to the housing;
> wherein the power source can be removed from the housing.

D. References

Petitioner relies upon the following references:

Topich	US 4,485,433	Nov. 27, 1984	Ex. 1019
J. Golden et al. (hereinafter “Golden”)	US 5,442,677	Aug. 15, 1995	Ex. 1017
Schulze-Ganzlin et al. (hereinafter “Schulze-Ganzlin”)	US 5,514,873	May 7, 1996	Ex. 1021
Skillicorn et al. (hereinafter “Skillicorn”)	US 5,077,771	Dec. 31, 1991	Ex. 1016
Grodzins	US 6,282,260 B1	Aug. 28, 2001	Ex. 1018

Kobayashi	JP 58-145098	Aug. 29, 1983	Ex. 1014[2]
Yu	CN 2675048	Feb. 2, 2005	Ex. 1012[3]
D. F. Spencer et al., "Using the Cockroft-Walton Voltage Multiplier Design in Handheld Devices," Oct. 2001 (preprint)[4] (hereinafter "Spencer")			Ex. 1020

E. Asserted Grounds of Unpatentability

Although Petitioner purports to present four "grounds" of unpatentability, each "ground" is actually a group of claims, for which Petitioner attempts to present multiple different challenges. We understand Petitioner's unpatentability challenges to be as follows:

References	**Basis**	**Claims Challenged**
Yu in view of Kobayashi	§ 103(a)[5]	6, 10, 45–48, 50–53, 55–59, and 62–64
Yu in view of Kobayashi and Schulze-Ganzlin	§ 103(a)	6, 10, 45–48, 50–53, 55–59, and 62–64
Kobayashi in view of Yu	§ 103(a)	6, 10, 45–48, 50–53, 55–59, and 62–64
Kobayashi in view of Yu and Grodzins	§ 103(a)	6, 10, 45–48, 50–53, 55–59, and 62–64
Yu, Kobayashi, and Skillicorn	§ 103(a)	14, 17, 34, 37, 39, 40, 42–44, and 61

[2] An English translation is provided in Exhibit 1015.
[3] An English translation is provided of Exhibit 1013.
[4] Patent Owner argues Petitioner does not offer any evidence to establish Spencer was sufficiently accessible to the public prior to the priority date of the '769 patent to qualify it as a prior art printed publication. Prelim. Resp. 26–27. Based on our analysis below, we need not determine whether Petitioner has made a sufficient threshold showing as to Spencer.
[5] The application from which the '769 patent issued was filed before the date on which the Leahy-Smith America Invents Act ("AIA"), Pub. L. No. 112-29, took effect. Therefore, our citations to 35 U.S.C. §§ 102, 103, and 112 are to their pre-AIA version.

Yu, Kobayashi, and Topich	§ 103(a)	14, 17, 34, 37, 39, 40, 42–44, and 61
Yu, Kobayashi, and Spencer	§ 103(a)	14, 17, 34, 37, 39, 40, 42–44, and 61
Yu, Kobayashi, and Golden	§ 103(a)	41 and 49
Yu, Kobayashi, Skillicorn, and Grodzins	§ 103(a)	60

II. ANALYSIS

A. Level of Ordinary Skill in the Art

Petitioner relies upon a Declaration of Dr. David M. Hamby (Ex. 1006) and a Declaration of Mr. Mark I. Montrose (Ex. 1009) for support of its Petition. Dr. Hamby testifies that a person of ordinary skill in *the general art of x-ray devices*, as described in the '769 patent, would have had a Bachelor of Science degree in physics, nuclear engineering, or health physics, or at least five years of experience in x-ray technologies. Ex. 1006 ¶ 12. With respect to electro-mechanical aspects of *power supplies* used for x-ray devices, as described in the '769 patent, Dr. Hamby relies on Mr. Montrose's opinion on the level of ordinary skill in the art. *Id*. In that regard, Mr. Montrose testifies that one of ordinary skill in the art would have had a Bachelor of Science degree in electrical engineering, or at least 2 years of experience in electrical engineering and system design. Ex. 1009 ¶ 7.

In its Preliminary Response, Patent Owner alleges that Petitioner's declarants provide conflicting definitions of the level of ordinary skill because Petitioner's declarants reference two different arts and define the persons of ordinary skill in these arts as having different education and training. Prelim. Resp. 30–32. Patent Owner argues the Petition should be denied for this reason alone. *Id*.

On this record, we are not persuaded by Patent Owner's argument. In determining the level of ordinary skill in the art, various factors may be considered, including "type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field." *In re GPAC, Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995). According to the "Field of the Invention" section of the '769 patent, the invention relates to *x-ray devices generally*, and also relates specifically to portable x-ray devices. Ex. 1001, 1:12–17. The "Summary of the Invention" section of the '769 patent explains that the portable x-ray devices of the invention have integrated power systems. *Id.* at 1:66–2:1. Petitioner's declarants merely recognize that, in the context of the '769 patent, a relevant skilled artisan would have had general knowledge in connection with *x-ray devices* as well as *power systems*. This is consistent with the prior art of record, recognizing the use of a smaller and lighter power system would address one of the problems of designing a portable x-ray device. *See*, *e.g.*, Ex. 1015 ¶¶ 11–15; Ex. 1016, 1:6–14, 8:8–60; Ex. 1017, 1:6–2:51. Therefore, we do not discern any meaningful conflict in Petitioner's definitions, as alleged by Patent Owner. Ex. 1006 ¶ 12; Ex. 1009 ¶ 7.

For purposes of this Decision, we adopt the definitions of a person of ordinary skill in the art identified by Dr. Hamby and Mr. Montrose, as they are consistent with the Specification of the '769 patent and the prior art of record. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (the prior art itself can reflect the appropriate level of ordinary skill in the art).

B. Claim Construction

Petitioner proposes constructions for the following four claim terms: (1) "portable x-ray device," (2) "integrated," (3) "internal power source," and (4) "high voltage." Pet. 8–10. Although the Petition refers to two declarations in which "Petitioner's proposed constructions are detailed," the Petition itself provides no meaningful discussion of these terms, merely presenting the constructions "in summary form" in a table. *Id.* (citing Ex. 1006 ¶¶ 12–25; Ex. 1009 ¶¶ 7–19). Patent Owner contests only one of Petitioner's proposed constructions, arguing that the term "integrated" means "incorporated into a housing so as to operate with other components." Prelim. Resp. 14–15.

Based on Petitioner's unpatentability challenges, we determine that the four terms identified by Petitioner need not be construed expressly at this time.

1. "Detecting Means"

All challenged independent claims recite "detecting means structurally unattached to the housing." The term "detecting means" recites a function—"detecting"—and uses the word "means," thus creating a presumption that 35 U.S.C. § 112 ¶ 6 applies. *See Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1349 (Fed. Cir. 2015) (quoting *Personalized Media Communications, LLC v. International Trade Commission*, 161 F.3d 696, 703 (Fed.Cir.1998)) (holding that "use of the word 'means' creates a presumption that § 112, ¶ 6 applies."). Section 112, paragraph 6 provides:

> An element in a claim for a combination may be expressed as a means or step for performing a specified function *without the recital of structure, material, or acts in support thereof*, and such claim shall be construed to cover the corresponding structure,

> material, or acts described in the specification and equivalents thereof.

(Emphasis added). The challenged independent claims do not recite particular structure for the "detecting means" to avoid invocation of 35 U.S.C. § 112 ¶ 6.[6] Therefore, we determine "detecting means" is a means-plus-function limitation subject to 35 U.S.C. § 112 ¶ 6.

A petition for *inter partes* review must

> [p]rovide a statement of the precise relief requested for each claim challenged. The statement must identify . . . [h]ow the challenged claim is to be construed. Where the claim to be construed contains a means-plus-function or step-plus-function limitation as permitted under 35 U.S.C. 112(f), the construction of the claim must identify the specific portions of the specification that describe the structure, material, or acts corresponding to each claimed function . . . .

37 C.F.R. 42.104(b). The Petition does not provide the requisite claim construction analysis for the term "detecting means." Nonetheless, because we determine that "detecting means" is a means-plus-function limitation, we provide the following claim construction analysis.

"Construction of a means-plus-function limitation includes two steps. 'First, the court must determine the claimed function. Second, the court must identify the corresponding structure in the written description of the patent that performs the function.'" *Noah Sys., Inc. v. Intuit Inc.*, 675 F.3d 1302, 1311 (Fed. Cir. 2012) (quoting *Applied Med. Res. Corp. v. U.S. Surgical Corp.*, 448 F.3d 1324, 1332 (Fed. Cir. 2006)).

[6] By contrast, the challenged independent claims also recite "display means comprising an LCD screen," which itself recites a structure for the "display means," i.e., a liquid crystal display (LCD).

The recited function is "detecting," which in the context of the claim means detecting x-rays. We next turn to the '769 Patent to determine the structure corresponding to the claimed function of detecting x-rays. The '769 Patent states:

> The invention also contains means for detecting or sensing the x-rays. Any detecting means known in the art that is sensitive to x-ray radiation can be used in the invention. Examples of such detecting means include x-rays receptors, x-ray film, CCD sensors, CMOS sensors, TFT sensors, imaging plates, and image intensifiers.

Ex. 1001, 6:25–30. Therefore, the recited structures corresponding to the claimed "detecting means" are "x-rays receptors, x-ray film, CCD sensors, CMOS sensors, TFT sensors, imaging plates, and image intensifiers." *See id.* In sum, "detecting means" requires structure that performs the "detecting" function using the corresponding structure in the specification, or equivalents thereof.

2. Remaining Terms

Based on Petitioner's unpatentability challenges, we determine that the remaining terms need not be construed expressly at this time.

C. Principles of Law

A patent claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int'l Co. v. Teleflex Inc*., 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of 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. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

D. Availability of Yu as Prior Art

Patent Owner argues the Petition should be denied because Yu, which is relied on for every ground in the Petition, is not prior art under 35 U.S.C. § 102(a), which provides "[a] person shall be entitled to a patent unless . . . (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent." Prelim. Resp. 1, 33–37. In particular, Patent Owner argues that conception and reduction to practice occurred prior to February 2, 2005, based on an inventor's declaration and supporting exhibits, including provisional application 60/546,575, submitted during reexamination pursuant to 37 C.F.R. § 1.131. Prelim. Resp. 1, 16, 33 (citing Ex. 1004).

Both parties agree that Yu was published on February 2, 2005. Pet. 12; Prelim. Resp. 16. Also, as explained above, Patent Owner acknowledges that the '769 patent's priority date is March 21, 2005, due to the break of the priority chain to provisional application 60/546,575 (*see* Prelim. Resp. 2–3), and, therefore, the date of constructive reduction to practice (March 21, 2005) is after the date of publication of Yu. Patent Owner's arguments primarily focus on provisional application 60/546,575, which Patent Owner contends supports the subject matter of the claims. *See* Prelim. Resp. 34–37. However, although the provisional application may support an argument of an earlier conception date, the provisional application is not a constructive reduction to practice due to the break in the chain of priority. *See In re*

Costello, 717 F.2d 1346, 1350 (Fed. Cir. 1983) ("While the filing of the original application theoretically constituted a constructive reduction to practice at the time, the subsequent abandonment of that application also resulted in an abandonment of the benefit of that filing as a constructive reduction to practice. The filing of the original application is, however, evidence of conception of the invention.").

As such, to demonstrate "the inventor of the challenged claims conceived and reduced them to practice before Yu published" (Prelim. Resp. 16), Patent Owner appears to argue *actual* reduction to practice occurred before February 2, 2005. The record before us does not demonstrate actual reduction to practice of the claimed subject matter prior to February 2, 2005. Therefore, we decline to deny institution on the basis that Yu is not prior art under 35 U.S.C. § 102(a).

E. Petitioner's Challenges to Claims 6, 10, 45–48, 50–53, 55–59, and 62–64

Petitioner raises several separate challenges to claims 6, 10, 45–48, 50–53, 55–59, and 62–64 based on various combinations of Kobayashi, Yu, Grodzins, and Schulze-Ganzlin. *See* Pet. 11–29.

1. Overview of Yu

Yu is directed to a portable x-ray diagnostic apparatus. Ex. 1013, Abstract. Figure 1 of Yu is reproduced below:

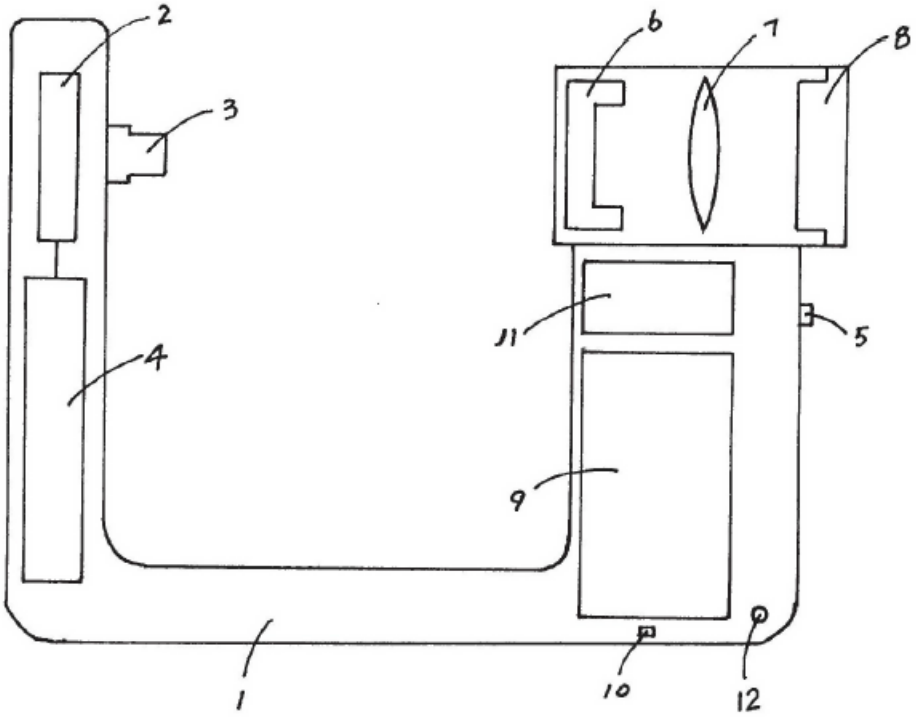

FIG. 1

Figure 1 depicts "a structural schematic diagram of an optimal embodiment of a portable digital X ray diagnostic apparatus." *Id*. at 3. Yu discloses that "[t]he portable digital X ray diagnostic apparatus is packaged into a whole by a plastic shell 1, and internally comprises" a number of components, including "small focal point X ray tube 2," "X ray image intensifier 6," "battery box 11" having a "changeable battery," and "liquid crystal display screen 9." *Id*. In operation, "the limb of a person or other object (generally called as object hereinafter) to be subject to fluoroscopy is placed between the X ray protection lead diaphragm 3 and the X ray image intensifier 6," and "the inversion voltage-multiplying high voltage generator 4 generates high voltage for the small focal point X ray tube 2 and transmits X ray, the ray passing through the X ray protection lead diaphragm 3 and the object is

received, converted and multiplied by the X ray image intensifier 6." *Id.* at 4.

2. Overview of Kobayashi

Kobayashi teaches that, conventionally, to observe the root of a tooth via x-ray photography, "X-ray film is generally placed in the oral cavity and photography of a transmission image is carried out by external X-ray irradiation." Ex. 1015 ¶ 2. Kobayashi explains that, for certain applications, such as real time observation using a cathode-ray tube (CRT), this conventional technique is inappropriate, and, instead, "an X-ray tube bulb which irradiates X-rays needs to be placed in the oral cavity and an X-ray imaging apparatus needs to be disposed outside thereof . . . ." *Id.* However, in such situations, "it is very difficult to insert the X-ray tube bulb into the oral cavity while ensuring electric safety without patients suffering pain." *Id.*

Figure 1 of Kobayashi is reproduced below.

[FIG. 1]

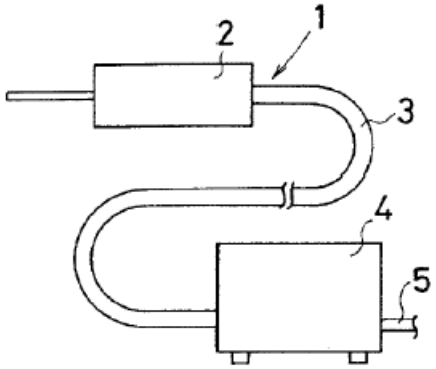

Figure 1 depicts a then conventional device having "X-ray tube bulb part 2 which irradiates X-rays from the tip of a small diameter part." *Id.* ¶ 3. In this configuration, X-ray tube bulb 2 is connected to high voltage power source part 4 by high voltage cable 3. *Id.* Kobayashi explains that "each

part to which a high voltage is applied needs to be highly electrically insulated," which results in a thick cable, "making it difficult to move X-ray tube bulb part 2 into a position convenient for diagnosis." *Id*. Kobayashi further explains that "high voltage electric leakage accidents may occur, potentially causing concern with regards to safety, for example, for the case in which X-ray tube bulb part 2 is inserted into the oral cavity, etc." *Id*.

Kobayashi is directed to a "portable X-ray generating apparatus which can be safely used as an apparatus for such medical treatment" described with respect to the device of Figure 1. Ex. 1015 ¶ 4.

Figure 4 of Kobayashi is reproduced below:

[FIG. 4]

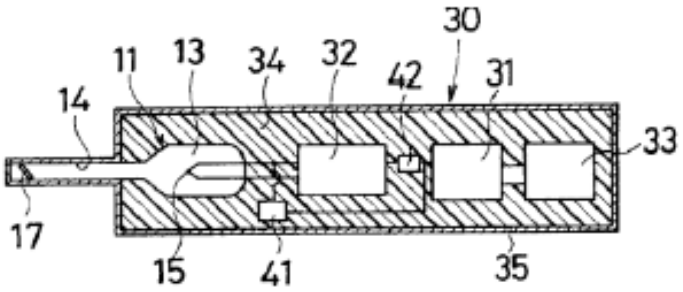

Figure 4 depicts an embodiment of a portable X-ray generating apparatus. Ex. 1015 ¶ 11. The depicted device contains "X-ray tube bulb 11," "chargeable reversible battery 31, high voltage generating circuit 32, and charging circuit 33." *Id*. The components are enclosed in "molded insulator 34" and "case 35." *Id*. Kobayashi explains that "an imaging apparatus having high multiplication such as a channel plate is disposed on the imaging side" to receive the x-rays transmitted from the x-ray generating apparatus. *Id*. ¶ 10.

3. Yu in View of Kobayashi

Petitioner asserts Yu teaches all limitations of claims 6, 10, 45–48, 50–53, 55–59, and 62–64 "*except* for the limitation that the detecting means is structurally unattached to the housing," for which Petitioner relies on the teachings of Kobayashi. Pet. 17–23. Petitioner argues:

> [A]s described and shown above, the [Kobayashi] reference teaches a portable X-ray device that does have detecting means, each of which is unattached to the housing. Specifically, one of its normal intended uses is in the field of dentistry for taking X-ray images of teeth and recording those images on film, or a channel plate and then displaying the images in real-time on a CRT. In such applications neither the film nor the channel plate is attached to the X-ray device. Combining teachings of the [Yu] reference with teachings of the [Kobayashi] reference according to then known methods would have yielded predicable results as related to the field of technology of the '769 patent. Specifically, it would have been obvious to a person of ordinary skill in this field to have modified the [Yu] portable X-ray device to have used a film or a channel plate that was structurally unattached to the housing, as taught by [Kobayashi].

Id. (citing Ex. 1006 ¶¶ 40–42). Patent Owner argues Petitioner's obviousness analysis is insufficient. *See* Prelim. Resp. 39–40. We agree.

The Supreme Court has stated that obviousness conclusions "cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *KSR*, 550 U.S. at 418 (*quoting In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)). Furthermore, "a patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art." *KSR*, 550 U.S. at 418.

Petitioner's argument rests on the premise that, in the field of dentistry, the x-ray detecting means, such as film, is not attached to the x-ray device, as evidenced by the teachings of Kobayashi. *See* Pet. 22–23. Therefore, according to Petitioner, it would have been obvious to modify the x-ray device of Yu to make the detecting means unattached. *See id.* However, Petitioner does not direct us to, nor do we find, disclosure in Yu indicating that Yu's x-ray device is used in dentistry. The x-ray device of Yu, as illustrated in Figure 1, has a space "between the X ray protection lead diaphragm 3 and the X ray image intensifier 6" into which "the limb of a person or other object (generally called as object hereinafter) to be subject to fluoroscopy is placed." Ex. 1013, 4, Fig. 1. As Patent Owner notes, Yu describes its x-ray device as being "packaged into a whole by a plastic shell" that includes a close-up lens and an image digital processing apparatus to provide better image quality. Prelim. Resp. 47 (citing Ex. 1013, Abstract, 2). Thus, the disclosure of Yu explains a reason for having a detecting means that is structurally *attached* to the housing, undermining Petitioner's conclusory assertion that making it unattached would have been obvious to a person of ordinary skill in the art.

Petitioner cites paragraphs 40–42 of the Declaration of David M. Hamby ("Hamby Declaration") (Ex. 1006) in support of its argument. *See* Pet. 22–23. However, the Hamby Declaration provides no additional persuasive explanation supporting Petitioner's argument. Rather, on this point, the Hamby Declaration and Petitioner's arguments appear to be identical. *Compare* Pet. 22–23, *with* Ex. 1006 ¶¶ 40–42.

Petitioner's conclusory assertion that it would have been obvious to modify Yu based on certain applications particular to dentistry is not

sufficient articulated reasoning to support the proposed modification of Yu, especially given the lack of evidence that Yu would have been used in dentistry.

Therefore, on the record before us, Petitioner has not demonstrated a reasonable likelihood that it would prevail on its assertion that claims 6, 10, 45–48, 50–53, 55–59, and 62–64 would have been unpatentable over Yu in view of Kobayashi.

4. Yu, Kobayashi, and Schulze-Ganzlin

Petitioner also argues claims 6, 10, 45–48, 50–53, 55–59, and 62–64 would have been obvious based on Yu, Kobayashi, and Schulze-Ganzlin. Pet. 28–29. Petitioner asserts Schulze-Ganzlin "illustrates and describes an X-ray apparatus that includes a *portable* detector that can be used in a clinical dental environment" and "has a compact structure, can be placed in the oral cavity of a patient, and detects X-ray radiation that emanates from an X-ray device, such as that of [Kobayashi]." *Id*. at 28. Petitioner contends:

> Combining teachings of the [Yu] reference with teachings of the [Kobayashi] reference (and *vice-versa*,[7] as discussed above) according to then known methods would have yielded predicable results as related to the field of technology of the '769 patent. Specifically, it would have been obvious to a person of ordinary skill in this field to have modified the portable X-ray device such as that of [Yu] (and of [Kobayashi]) to have used a detector that

[7] We understand Petitioner's additional argument based on Schulze-Ganzlin to be directed to a modification of Yu rather than a modification of Kobayashi because Petitioner contends Kobayashi teaches a detecting means that is structurally unattached to the housing of the x-ray device. *See* Pet. 19, 22–23.

> is compact, portable and structurally unattached to the housing, as taught by Schulze-Ganzlin '873.

Id. at 29 (citing Ex. 1009 ¶ 35; Ex. 1006 ¶ 43).

Petitioner's rationale for its proposed modification of the x-ray device of Yu to have a detecting means structurally unattached to the housing, as taught by Schulze-Ganzlin, is no more compelling than its reasoning for the same modification of Yu based on Kobayashi, discussed above. We note that the cited testimony of Petitioner's declarants does not provide support for the proposed modification of Yu. *See* Ex. 1009 ¶ 35; Ex. 1006 ¶ 43. The Montrose Declaration states:

> I understand that Schulze-Ganzlin illustrates and describes an X-ray apparatus that includes a portable detector that can be used in a clinical dental environment in which the detector is placed in the oral cavity a patient and detects X-ray radiation that emanated from an X-ray device, such as the X-ray device of [Kobayashi], Skillicorn 771, Golden'677 and Grodzins '260.

Ex. 1009 ¶ 35. This passage from the Montrose Declaration does not even mention the device of Yu as a device with which the detector of Schulze-Ganzlin can be used, let alone provide a reason one of ordinary skill in the art would modify the device of Yu to include a "detecting means structurally unattached to the housing."

The Hamby Declaration states:

> Schulze-Ganzlin '873 illustrates and describes a stand-alone X-ray detector that was adapted to be arranged in the mouth of a dental patient, and then irradiated with an X-ray source, such as provide [sic] by a conventional, portable X-ray device as described above.

Ex. 1006 ¶ 43A. This testimony simply describes Schulze-Ganzlin, but it does not explain why a person of ordinary skill in the art would modify the

device of Yu to include a "detecting means structurally unattached to the housing."

Therefore, on the record before us, Petitioner has not demonstrated a reasonable likelihood that it would prevail on its assertion that claims 6, 10, 45–48, 50–53, 55–59, and 62–64 would have been unpatentable over Yu, Kobayashi, and Schulze-Ganzlin.

5. Kobayashi in View of Yu and Grodzins

As an alternative to Petitioner's challenges based on Yu in view of Kobayashi and Schulze-Ganzlin, Petitioner asserts claims 6, 10, 45–48, 50–53, 55–59, and 62–64 would have been obvious over Kobayashi in view of Yu and also in view of Grodzins. Pet. 11, 23–28. Petitioner asserts all of the limitations of these claims "are found in the portable X-ray device described and taught in the [Kobayashi] reference except for the LCD display means and the removable power source." Pet. 23–24.

Petitioner contends "[i]t would have been obvious to have modified the portable X-ray device of the [Kobayashi] reference by including in it an LCD display means as taught by the [Yu] reference." *Id*. at 24 (citing Ex. 1006 ¶ 43). Petitioner argues such a combination would "have been another example of combining teachings of one reference ([Kobayashi]) with teachings of another reference (the [Yu] display means) according to then known methods that would yield predicable results as related to the field of technology of the '769 patent." Pet. 24. Petitioner also argues "such a combination was virtually invited by the '769 patent specification." *Id*. (citing Ex. 1001, 6:34–41).

Petitioner asserts Grodzins "is an additional reference showing that use of an image display integrated into the housing of a portable, hand-held

X-ray device was well known to those of ordinary skill in this field of technology by early 2004." Pet. 26–27 (citing Ex. 1006 ¶¶ 36–38; Ex. 1009 ¶ 34). Petitioner argues that providing a housing with an integrated display, as taught by Grodzins, in the device of Kobayashi would have been "simply an application of a known technique [integrated image display of Grodzins] to a known device that was ready for improvement [in the case of the X-ray device of JP'098[8]] and the resulting X-ray device's image display capability was predictable." Pet. 27 (brackets in original). Petitioner argues that the "predictable result" would have been "that the thus-modified portable X-ray device would have had a housing with an integrated image display that provided the operator of the device with the capability to understand the detected X-rays." Pet. 27.

As an initial matter, we note Petitioner appears to allege that the x-ray generating device of Kobayashi teaches the claimed "housing" recited in claim 6, which is only one component of the claimed "portable x-ray device." Petitioner contends:

> The [Kobayashi] X-ray device is placed in the oral cavity of the patient and then an X-ray image of the tooth is taken by the device. Either a cathode ray tube (CRT), for real-time images, or a film for photography, can be used to detect and capture the X-ray image of the tooth. In either scenario, the CRT and the film are structurally unattached to the housing of the [Kobayashi] device.

Pet. 19 (citing Ex. 1006 ¶¶ 30–35; Ex. 1009 ¶¶ 24–33). Thus, Petitioner appears to contend other components are part of the Kobayashi x-ray system. Indeed, Kobayashi explains that "an imaging apparatus . . . such as a channel plate is disposed on the imaging side" to receive the x-rays

[8] The Petition refers to Kobayashi as JP'098.

transmitted from the x-ray generating device.[9] Ex. 1015 ¶ 10. Thus, the imaging apparatus of Kobayashi is for obtaining and viewing x-ray images. Kobayashi discloses a cathode-ray tube ("CRT") as an example of a display device for viewing x-ray images (Ex. 1015 ¶ 2), but this display device is on the imaging side of Kobayashi's x-ray system along with the x-ray detector, such as the channel plate.

In Petitioner's proposed modification of Kobayashi, the x-ray generating device would include an LCD display means for the purpose of "provid[ing] the operator of the device with the capability to understand the detected X-rays." Pet. 27. However, Petitioner still relies on Kobayashi's alleged disclosure of a "detecting means structurally unattached to the housing" to teach the limitations of claim 6. It is therefore unclear how Petitioner proposes to include such an LCD display means on the x-ray generating device of Kobayashi that displays x-ray images when the detecting means is in the "imaging apparatus" separate from the x-ray generating device.

Petitioner's conclusory assertion that adding an LCD would have been done according to known methods to yield predictable results (Pet. 24) is not sufficient articulated reasoning. Furthermore, Petitioner's argument that "such a combination was virtually invited by the '769 patent specification" (*id.*) appears to be nothing more than a hindsight allegation that certain subject matter is obvious because it is disclosed in the challenged patent.

Petitioner cites paragraphs 36–39 and 43 of the Hamby Declaration and paragraph 34 of the Montrose Declaration in support of its arguments.

[9] We note Petitioner presents no evidence that the imaging apparatus, as opposed to the x-ray generating device, of Kobayashi is itself "portable."

See Pet. 24–28. However, the Hamby Declaration provides no additional persuasive explanation supporting Petitioner's arguments. Rather, the Hamby Declaration and Petitioner's arguments appear to be largely identical. *Compare* Pet. 24, *with* Ex. 1006 ¶ 43; *compare* Pet. 25–28, *with* Ex. 1006 ¶¶ 36–38. The cited testimony of Mr. Montrose simply describes certain teachings of Grodzins, but it does not explain why a person of ordinary skill in the art would modify the x-ray generating apparatus of Kobayashi to include a display. *See* Ex. 1009 ¶ 34.

In sum, Petitioner does not provide sufficient articulated reasoning with rational underpinning to support its contention that a person of ordinary skill in the art would have included a liquid crystal display on the x-ray generating device of Kobayashi.

Therefore, on the record before us, Petitioner has not demonstrated a reasonable likelihood that it would prevail on its assertion that claims 6, 10, 45–48, 50–53, 55–59, and 62–64 would have been unpatentable over Kobayashi in view of Yu and Grodzins.

F. Petitioner's Additional Challenges

Petitioner's challenges to claims 14, 17, 34, 37, 39, 40–44, 60, and 61[10] depend on its contentions with respect to Yu and Kobayashi for claim 6, discussed above, and these additional challenges do not cure the deficiencies in Petitioner's contentions. As such, we are not persuaded the record before us establishes a reasonable likelihood that Petitioner would prevail on its assertions that claims 14, 17, 34, 37, 39, 40–44, 60, and 61 would have been unpatentable as alleged in the Petition.

[10] These are designated Grounds 2–4 in the Petition.

III. CONCLUSION

For the foregoing reasons, we are not persuaded that the Petition establishes a reasonable likelihood that Petitioner would prevail in showing claims 6, 10, 14, 17, 34, 36, 37, 39–53, and 55–64 of the '769 patent are unpatentable under 35 U.S.C. § 103(a).

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that the Petition is *denied*, and no trial is instituted.

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