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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

VICOR CORPORATION
Requester and Respondent

v.

Patent of SYNQOR, INC.
Patent Owner and Appellant

Appeal 2014-001733
Reexamination Control 95/001,702¹
Patent 7,072,190 B2²
Technology Center 3900

Before JAMES T. MOORE, STEPHEN C. SIU, and
DENISE M. POTHIER, *Administrative Patent Judges*.

MOORE, *Administrative Patent Judge*.

DECISION ON REMAND

STATEMENT OF THE CASE

Patent Owner SynQor appealed under 35 U.S.C. §§ 134(b) and 315(a) (2006) from the rejection of claims 1–38 as set forth in the Right of Appeal

¹ Vicor Corporation filed a corrected request for *inter partes* reexamination (the “Request”) on September 8, 2011.

² Issued July 4, 2006 to Martin Schlecht and assigned to SynQor, Inc. (the “’190 patent”). The ’190 patent issued from Application 10/812,314, filed March 29, 2004.

Notice (“RAN”) mailed November 26, 2012. We entered a decision reversing the rejections of record on April 10, 2014.

The Requester appealed the April 10, 2014 decision to our reviewing court, the U.S. Court of Appeals for the Federal Circuit. That court reversed our decision in part on March 13, 2015, vacated the remainder, and remanded the case to us. *Vicor Corp v. SynQor, Inc.*, 603 F. App’x 969 (Fed. Cir. 2015). Rehearing was denied in an order dated April 24, 2015.

As noted above, the proceeding has been remanded to us for further proceedings. This is the decision following that remand.

THE FEDERAL CIRCUIT DECISION

The Federal Circuit held that two references, Steigerwald US Patent 5,377,090 (issued Dec. 27, 1994) (“Steigerwald ’090”) and Steigerwald US Patent 5,274,539 (issued Dec. 28, 1993) (“Steigerwald ’539”) should be read together as describing an alternative embodiment which teaches substitution of synchronous rectifiers for diodes. More specifically:

We accordingly hold that the combined reference teaches substituting controlled rectifiers for diodes within the capacitance-multiplying converter 20 of both Steigerwald ’539’s Figure 4 and Steigerwald ’090’s Figure 1. The combined reference teaches a single embodiment that anticipates all elements of representative claim 20, and we reverse the Board’s conclusion to the contrary.

Vicor Corp., 603 F. App’x at 975.

The Federal Circuit then reversed our decision on anticipation, holding claims 20–23, 27, 29, 30, 32, and 33 to have been anticipated, and vacated all the obviousness decisions, with an instruction to consider Vicor’s position that SynQor’s evidence of commercial success is attributable not to the claimed invention, but to the prior art converter. *Id.* at 975–76.

With this guidance from the Federal Circuit in mind, we return to this decision.

THE REJECTIONS REMAINING AT ISSUE

I. Claims 24–26 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Steigerwald '090.

II. Claims 1, 5–8, 11–13, 17, 18, 24, 28, and 31 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Steigerwald '090, Steigerwald '539, and J.A. Cobos & J. Uceda, *Low Output Voltage DC/DC Conversion*, 1994 20th Int'l Conf. on Indus. Electronics, Control & Instrumentation 1676 (“Cobos”).

III. Claims 2–4 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Steigerwald '090, Steigerwald '539, Cobos, and Abraham I. Pressman, *Switching and Linear Power Supply, Power Converter Design* (1977) (“Pressman”).

IV. Claims 9, 10, 14–16, and 19 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Steigerwald '090, Steigerwald '539, and Cobos.

V. Claims 1–33 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Cobos and Pressman.

VI. Claims 34–38 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Cobos and Pressman.

VII. Claims 35–38 stand rejected under 35 U.S.C. § 103(a) over Steigerwald '090, Steigerwald '539, Admitted Prior Art, and Pressman.

I. The Rejection of Claims 24–26 Under 35 U.S.C. § 103(a) As Being Unpatentable over Steigerwald '090.

This rejection was adopted from the Request, pages 26–30. RAN 4. The rejection builds from the now reversed anticipation rejection of claim 20. These dependent claims stand rejected as unpatentable under 35 U.S.C. § 103(a).

Claim 20 reads as follows:

20. A power converter system comprising:

a DC power source;

a non-regulating isolation stage comprising:

a primary transformer winding circuit having at least one primary winding connected to the source; and

a secondary transformer winding circuit having at least one secondary winding coupled to the at least one primary winding and having plural controlled rectifiers, each having a parallel uncontrolled rectifier and each connected to a secondary winding, each controlled rectifier being turned on and off in synchronization with the voltage waveform across a primary winding to provide an output; and

a plurality of non-isolating regulation stages, each receiving the output of the isolation stage and regulating a regulation stage output.

Claim 24 recites a DC power source that provides a voltage level “within the range of 36 to 75 volts” and Claim 25 recites an isolation stage output of “about 12 volts.” Finally, Claim 26 recites a regulation stage output “of a voltage level to drive logic circuitry.” The Examiner found these levels would have been obvious because of these voltages’ widespread use. Req. 29–30.

The Requester submitted the declaration of Dr. Patrizio Vinciarelli, which we have carefully reviewed. It states, from the indicated point of view of one of ordinary skill in the art, that:

(1) Steigerwald '090's basic teaching—to use a single non-regulating isolation stage to supply a multiplicity of non-isolating regulation stages so as to provide isolated and regulated power to multiple loads having different voltage requirements without multiple isolation stages—could be applied to any power system with a multiplicity of loads requiring different voltages. Such power systems included computer and telecommunication equipment, in which digital logic circuits depend upon a multiplicity of different voltages on a common circuit board. Vinciarelli Decl. para. 8.

(2) Steigerwald '090's teaching to use metal oxide semiconductor field effect transistors (“MOSFETs”) as synchronous rectifiers in some embodiments would be applicable, and advantageous, in any power system in which high efficiency was important, since synchronous rectifiers could be used to reduce the forward voltage drop and power loss that was inherent in diode rectifiers. In 1997, such power systems included circuit boards for computer and telecommunication equipment. *Id.* para. 9.

(3) In 1997, it was common for the main DC power bus in telecommunication equipment to have a voltage in the range of 36–75 volts (with a nominal level of 48 volts). *Id.* para. 10.

(4) In 1997, it was common for different digital logic circuits to require power at 12V, 5V and 3.3V. *Id.* para. 11.

The Requester urges, therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the

Steigerwald conversion in electronic applications, and to apply common voltages. Req. 28.

As noted above, the Federal Circuit has determined that Steigerwald '090 and Steigerwald '539 describe substituting controlled rectifiers for diodes within the capacitance-multiplying converter 20 of both Steigerwald '539's Figure 4 and Steigerwald '090's Figure 1. As anticipation is the epitome of obviousness, there is no remaining factual dispute for us to resolve, as the evidence of record supports a finding that the specifically recited voltage levels were well-known in the art and adjusting to them routine. SynQor has provided no persuasive argument to the contrary on this point.

Accordingly, we are persuaded that the Examiner did not err in determining that the cited references establish a prima facie case of obviousness.

II. The Rejection of Claims 1, 5–8, 11–13, 17, 18, 24, 28, and 31 Under 35 U.S.C. § 103(a) As Being Unpatentable over Steigerwald '090, Steigerwald '539, and Cobos.

This rejection was adopted from the Request, pages 30–44. RAN 4. Claim 1 is similar to claim 20, adding an element that the primary winding voltage waveform has a “fixed duty cycle and transition times which are short relative to the on-state and off-state times of the controlled rectifiers.” '190 patent, 17:21–42.

The Request urged that Cobos taught the importance of short transitions in the transformer voltage waveform where that waveform is used to drive synchronous rectifiers. It also asserted that Cobos provides motivation to modify Steigerwald '090 to add short transitions. Req. 31. The Examiner adopted those findings. RAN 4.

The Patent Owner first urges that the claims are not obvious over Steigerwald '090 and other references “due to the incorporation failure.” PO Suppl. App. Br. 12. As the Federal Circuit has determined Steigerwald '539 was properly incorporated into Steigerwald '090 as discussed above, this argument is unpersuasive.

The Patent Owner next urges that claims 1–38 are not unpatentable as obvious because Cobos’ synchronous rectification technique was beyond the level of ordinary skill in the art. *Id.* at 12. The first prong of this argument is that the Examiner failed to resolve the level of ordinary skill in the art. *Id.* at 13. According to the Patent Owner, the level of skill is quite low, and this fact undermines the rejections. *Id.*

The patents and prior art of record in this instance enable the Examiner and the Board to assess the level of skill. “[A]n invention may be held to have been either obvious (or nonobvious) without a specific finding of a particular level of skill . . . where, as here, the prior art itself reflects an appropriate level” *Chore-Time Equip., Inc. v. Cumberland Corp.*, 713 F.2d 774, 779 n.2 (Fed. Cir. 1983).

First, we find that the objective evidence of record (Cobos) establishes that synchronous rectification was known to those of ordinary skill in the art as useable in low output voltage DC to DC conversion. Req. 32, 53; Cobos Fig. 5. This weighs heavily in favor of implementation being within the skill of the ordinary artisan. Second, even if we accept counsel’s argument that the technology was “difficult[]” to implement and “amaz[ing]” (PO Suppl. App. Br. 13), the evidence of such amazement and difficulty does not provide sufficient evidence to show that the implementation of synchronous rectification was beyond the skill of the artisan.

The Patent Owner next asserts that the Examiner erred by giving weight to the declaration testimony of Dr. Vinciarelli. *Id.* at 13. According to Patent Owner, the Vinciarelli declaration is a collection of unsupported argument that fails to provide supporting facts. Patent Owner urges that Vinciarelli provided no factual basis for his opinion, his declaration is undercut by his own US Patent 6,421,262 B1 (the “’262 patent”), and the declaration should be given no weight. *Id.* at 13–14.

Vinciarelli’s testimony is evidence of certain factual allegations (Vinciarelli Decl. paras. 10, 11, and 12), the testimony appears credible and supported by other evidence in the record of these voltage levels. We also have reviewed the cited portion of the ’262 patent. The ’262 patent 4:4–45. While the ’262 patent discusses the technical issues with achieving synchronous rectification, on the present record in this proceeding, we do not find that the problems equate to an inability of one of ordinary skill in the art to implement synchronous rectification.

Appellant next urges that there is no motivation for one of ordinary skill in the art to have modified Steigerwald’s circuit with Cobos’ circuit. PO Suppl. App. Br. 14. According to the Patent Owner, adding inductance into the current path renders Steigerwald ’090 unfit for its purpose. *Id.*

This argument fails, as the Federal Circuit has held that the person of ordinary skill in the art would have understood that Steigerwald ’090 (with the incorporated Steigerwald ’539) necessarily contains an inductor or induction stage in the current path as a controlled rectifier.

The Appellant next urges that Cobos’ and Steigerwald’s circuits are mutually incompatible because of their switching frequency. *Id.* at 15. While we agree that there are frequency differentials between the two

references, much of the difficulty appears to be in creating the waveform and drivers. Schlecht Decl. paras. 41–43. However, in light of the Federal Circuit’s determination that one of ordinary skill in the art would already have the description of an embodiment having synchronous rectifiers (and by implication their corresponding waveforms and drivers), we are not persuaded that the switching frequency differential is sufficient to render the combination unsuitable.

The Appellant next urges that Cobos fails to provide a “short transition.” PO Suppl. App. Br. 15. We are unpersuaded by this as Cobos at page 1678–79 describes that fast transition times minimize conduction and switching losses. *See* Req. Resp’t. Br. 29.

We, therefore, are unpersuaded by these arguments of error.

III. The Rejection of Claims 2-4 Under 35 U.S.C. § 103(a) As Being Unpatentable over Steigerwald ’090, Steigerwald ’539, Cobos, and Pressman.

This rejection was adopted from the Request, pages 45–47. RAN 4.

By adoption, the Examiner found that Steigerwald ’090 teaches an unregulated isolation stage that provides power to a plurality of non-isolating regulation stages, but does not expressly state whether the series regulators 50, 51, 60, and 61 are series switching regulators. Req. 45 (citing Steigerwald ’090, 2:47–50).

Pressman was found to describe the same configuration as Steigerwald ’090. That is, Pressman teaches an unregulated isolation stage providing power to a plurality of non-isolating regulation stages, in Figure 3-4(B), except that Pressman described switching regulators. Pressman Fig. 3-4 and at 83.

The Examiner also found that Pressman described that switching post-regulators provide improved efficiency relative to linear regulators when used in the configuration disclosed in Steigerwald '090. The Examiner thus concluded it would also have been obvious to a person having ordinary skill in the art that the Steigerwald '090 design could be used to supply exclusively non-pulsed loads for which switching regulators would provide superior efficiency. Req. at 46.

The Appellant asserts that the Examiner ignored basic electrical principles that an inductor in a current path interferes with powering the Steigerwald radar. PO Suppl. App Br. 17. However, the inclusion of the controlled rectifier embodiment of Steigerwald '539 has been determined by our reviewing court to occur within the capacitance multiplying converter of Steigerwald '090. *Vicor Corp.*, 603 F. App'x at 975.

Accordingly, the presence of induction in the circuit is known in the art, and on the present record does not establish that such an inductor would interfere with powering Steigerwald's system.

We are therefore unpersuaded of error in this regard.

IV. The Rejection of Claims 9, 10, 14–16, and 19 Under 35 U.S.C. § 103(a) As Being Unpatentable over Steigerwald '090, Steigerwald '539, and Cobos.

This rejection was adopted from the Request, pages 47–52. RAN 5.

Exemplary Claim 9 reads as follows:

9. A power converter system as claimed in claim 1 wherein the output of the isolation stage is about 12 volts.

The Examiner found that the person of ordinary skill in the art at the time of the alleged invention knew how to supply multiple voltages to different digital logic circuits in telecommunication and computer

applications, and it would have been obvious to such a person to set to the output voltage of the isolation stage to about 12 volts. Twelve volts was the voltage that would result from a 4:1 transformation ratio and an input voltage of 48 volts, which was a widely used voltage in telecommunication applications. Twelve volts would be high enough to power a wide range of digital logic loads, including loads having the typical 12V, 5V and 3.3V requirements of the time. Further, column 1, line 42 of the '190 patent confirms that a 12V load was conventionally known and commonly used. Req. 50.

The Appellant urges that rejections in reexamination cannot rely upon “common knowledge” and is by statute limited to patents and printed publications. PO Suppl. App. Br. 15. The Appellant asserts that one cannot substitute a third party declaration to fill in substantive gaps where official notice would fail. *Id.* at 16.

A reexamination proceeding relies upon patents and printed publications 35 U.S.C. § 311; 35 U.S.C. § 301 (a). That art is not taken in a vacuum, however. The rejection of claim 1 is founded on Steigerwald, Cobos, and Pressman. We observe that the claim chart for claim 9, a dependent claim depending from claim 1, establishes that 12 volts was known. Req. 50. That claim chart referred to the background of the invention in the instantly reexamined patent, found in the specification at column 1, lines 26–47. It is a fair reading of that background section that it was commonly known that power losses are substantial through conduction loss in diodes, particularly in low load or source voltages, and exemplary voltages are given—3.3, 5, and 12 volts.

The specification states to deal with these losses, diodes “are sometimes replaced” with synchronous rectifiers. We think this situation is more of an admission of the known prior art by the applicant, and sufficiently distinct from the official notice situation in *In re Abbott Diabetes Care Inc.*, 696 F.3d 1142 (Fed. Cir. 2012). Moreover, Patent Owner does not dispute the underlying accuracy of the finding. Accordingly, we are not persuaded by this argument of error as regards claim 9.

Claim 10’s claim chart, likewise, cites Steigerwald ’539 in conjunction with Steigerwald ’090 for its description of 5–9 volts useable for control functions. Req. 50. It also cites the admission in the ’190 patent specification. *Id.* at 51. We are, therefore, not persuaded of error as regards claim 10.

The remainder of the claims rely upon cited description in both the cited art and the background in the ’190 patent. Accordingly, we remain unpersuaded of error as to the mentioning of “knowledge” of one of ordinary skill in the art.

V. The Rejection of Claims 1–33 Under 35 U.S.C. § 103(a) As Being Unpatentable over Cobos and Pressman.

This rejection was adopted from the Request, pages 53–80. RAN 5.

The Requester urged, and the Examiner adopted, findings that Cobos has a DC power source and all the elements of the non-regulating isolation stage of claim 1. According to the Requester and Examiner, Figure 5(b) of Cobos showed the transformer with primary and secondary windings, the two synchronous converters driven by the secondary voltage waveform and thus synchronized with both the primary and secondary voltage waveforms synchronized with each other, and the optimum voltage waveform with short

transitions as shown in Figure 5(c). Cobos was also said to describe a fixed duty cycle, i.e., a constant duty cycle 50% at page 1680. Req. 53.

Cobos was found to be missing the non-isolating regulation stages driven by the output of the isolating stage. The Requester and Examiner rely on Pressman for a teaching of driving multiple non-isolated switching regulators from a single isolation stage. Specifically, they point to Figure 3-4(b) on page 82, with description on page 83. The motivation to make the combination is said to be to provide a multiplicity of different output voltages at high efficiency. The Examiner and Requester conclude the combination would have rendered claim 1 obvious to one of ordinary skill in the art at the time the invention was made. *Id.* at 54.

On the other side of the coin, the Patent Owner states that Cobos already provides a solution to providing a multiplicity of different output voltages at high efficiency in Figure 14(a), and the combination proposed by the Requester would not have high efficiency. PO Resp. 39 of Jan. 17, 2012.

More specifically, Patent Owner urges that the solution of Cobos in Figure 14 (a) is said to be to use a plurality of half bridge circuits, each as shown in Figure 10, and each creating a different output at high efficiency. As noted at page 1680, left column, Figure 10 relies on variations in duty cycle to control the output voltage. Thus, the solution provided by Cobos is to provide a plurality of high efficiency single-stage converters that both isolate and regulate. *Id.*

Cobos is said to demonstrate efficiencies up to 90%. Cobos 1680. Thus, since Cobos had already presented a high efficiency solution to providing multiple output voltages, it is urged that the motivation suggested by the Requester does not exist. PO Resp. 39, Jan. 17, 2012.

Further, the Patent Owner asserts that Figure 3-4B of Pressman to which the Requester points has a very low efficiency relative to other circuits in Pressman or the one shown in Figure 14a of Cobos. The motivation of high efficiency suggested by Requester would not lead a person of ordinary skill to Figure 3-4B of Pressman. *Id.*

The Requester responds that Pressman expressly teaches that a non-regulating isolation stage such as the one found in Cobos can be used “to generate a multiplicity of different output voltages at high efficiency as shown in Fig. 3-4B.” Req. Resp’t. Br. 31 (quoting Pressman 83). The Requester further urges that “Pressman also notes that the various components shown can be moved about in ‘building block’ fashion without unexpected results, and that there are many reasons to do so including, but certainly not limited to, efficiency.” *Id.* (footnote omitted).

In rebuttal, the Patent Owner urges that Cobos teaches away from the proposed combination of references. Cobos is said to teach using a separate regulating isolation stage for each desired output voltage. “Cobos already presents a solution to achieve multiple output voltages, meaning there is no reason to combine the references in the manner asserted by the [Requester], other than by impermissibly relying on SynQor’s ’190 patent claims as a guide in formulating the rejections.” PO Reb. Br. 9.

The Patent Owner additionally notes that “Pressman also does not provide any reasoning or motivation to combine the references in the manner asserted by [Requester],” specifically decrying the statement that circuit elements are “building blocks” and that the building blocks can be recombined depending on the application. *Id.* (citing Pressman 74).

On balance, we remain of the opinion that the Patent Owner has the better argument. Without the guidance of the claims, one is left with no clear rationale for assembling the basic building blocks of Pressman into a particular configuration to create a specific circuit. *Id.* at 9.

We also find merit in the Patent Owner's contention that Pressman's description of Figure 3-4(B) discusses that multiple output voltages may be obtained at high efficiency by using multiple switching post-regulators (one for each output) rather than series-pass post-regulators (which would result in low efficiency). We then are left principally with hindsight as the basic motivation for making this combination of Cobos and Pressman alone. *Id.* at 17.

We therefore reverse this rejection.

VI. The Rejection of Claims 34–38 Under 35 U.S.C. § 103(a) As Being Unpatentable over Cobos and Pressman.

This rejection incorporates the rejection adopted above against claims 1–33. RAN 5. Cobos in view of Pressman was applied as above to claims 1–33. Accordingly, as we have reversed that rejection (Section V above) and for the reasons stated above, we likewise reverse this rejection.

VII. The Rejection of Claims Claims 35–38 Under 35 U.S.C. § 103(a) over Steigerwald '090, Steigerwald '539, Admitted Prior Art, and Pressman.

This rejection appears in the RAN at page 6. According to the Examiner, Steigerwald '090 and Steigerwald '539 (incorporated by reference) are applied as shown in the Non-Final Action against claims 20–23, 27, 29, 30, 32, and 33 (Section I above). New claims 35–38 are found to depend from claims 20 and 27 and claims 35 and 37 require switching regulators, whereas claims 36 and 38 require switching regulators, a DC

power source providing a voltage within the range of 36–75 volts wherein “the regulation stage output is of a voltage level to drive logic circuitry.”

With regard to switching regulators, the Examiner found that Pressman teaches in connection with Figure 3-4B that the use of switching regulators “to generate a multiplicity of different output voltages” can achieve high efficiency. RAN 6 (quoting Pressman 83).

The Examiner then concludes it would have been obvious to use the switching regulators of Pressman in the circuit of Steigerwald. *Id.*

Furthermore, the Examiner finds that limitations to an input voltage between 36 and 75 volts and an output voltage to drive logic circuitry are Admitted Prior Art, citing to Dr. Schlecht’s testimony and the background section of the ’190 patent. *Id.*

The Appellant Patent Owner takes the position that as claims 35–38 require switching regulators, and consequently inductors, they cannot be rendered obvious by the Steigerwald patents. PO Suppl. App. Br. 16. However, that position is contrary to the determination by the Federal Circuit that the Steigerwald patents describe an embodiment which necessarily includes inductors in the current path, by the use of controlled rectifiers.

Accordingly, we are unpersuaded of error in this regard.

VIII. *New Ground of Rejection—Claim 34*

Claim 34 is newly rejected under under 35 U.S.C. § 103(a) as being unpatentable over Steigerwald ’090, Steigerwald ’539, Cobos, Admitted Prior Art, and Pressman.

Claim 34 depends from claim 1, which stands rejected for the reasons set forth by the Examiner in Section II above. It adds three limitations, of a

switching regulator, a DC power source of between 36 and 75 volts, and an output to drive logic circuitry. Each of these individual elements is contained in claims 2, 10, 14, 18, and 19, which also depend from claim 1. Each of these claims has been found to be obvious for the reasons set forth in Section III, Section IV, Section IV, Section II, and Section IV, respectively, above, as adopted by the Examiner in the RAN.

To be consistent, we newly reject claim 34 for the reasons stated in Sections II–IV above for claims 1, 2, 10, 14, 18, and 19. These are known electrical components and voltage values, and combining the teachings of the references is a simple substitution of a known element for its intended purpose, including adjustment to a known optimal voltage value.

IX. Secondary Considerations

In deciding questions of obviousness, we consider all four *Graham* factors including objective evidence of non-obviousness. A prima facie case made by the Examiner is not a conclusion on the ultimate issue of obviousness. The ultimate conclusion of obviousness is a legal conclusion to be reached after weighing all of the evidence on both sides. *Apple Inc. v. Int’l Trade Comm’n*, 725 F.3d 1356, 1365 (Fed. Cir. 2013).

The Examiner stated that the evidence submitted was considered, but then added the following comment:

Patent Owner’s response is heavily relied [sic—reliant?] on litigation evidence, which might or might not be the same evidence as in the court since Patent Owner is relying on the court itself as evidence. Patent Owner has repeatedly referred to alleged conclusions of the trial witnesses, the jury, and the District Court Judge without providing underlying evidence that these conclusions are allegedly based on. It is noted that the jury’s verdict is not evidence and as stated in MPEP 2686 that Court decision will have no binding effect

on the examination of the reexamination unless it is a final Court holding of claim invalidity/unenforceability.

RAN 7–8.

We again disagree with this blanket statement that the affirmed adjudication of infringement cannot constitute informative or persuasive evidence of secondary considerations within the realm of making a patentability determination under § 103.

The '190 patent was among those asserted in *SynQor, Inc. v. Artesyn Technologies, Inc.*, No. 2:07-CV-497 (E.D. Tex.) (the "'497 litigation") against the Requester and others. After a jury trial, the Court enjoined the defendants from infringement of the '190 patent and others. PO Suppl. App. Br. 1. Subsequently, the Federal Circuit in a decision dated March 13, 2013, affirmed the decision of the Texas District Court. *SynQor, Inc. v. Artesyn Techs., Inc.*, 709 F.3d 1365 (Fed. Cir. 2013). Additionally, the Federal Circuit denied the defendants' Petition for Rehearing and Rehearing en banc on May 16, 2013. The Federal Circuit also denied the defendants' Motion to Stay the Mandate on May 28, 2013. The Mandate issued on May 30, 2013, making the Decision final. PO Reb. Br. 1.

Turning to the jury verdict form (Exhibit A20), we observe that the jury determined that (1) claims 2, 8, and 19 were infringed by the 42R8295 product of Bel Fuse and (2) Artesyn, Astec, Bel Fuse, Cherokee, Delta, Lineage, Murata, Murata Power Solutions, and Power-One induced and contributed to infringement of claims 2, 8, 10, and 19. Ex. A20, at 9–27.

We are informed that millions of infringing units were sold, and that the end products are commensurate in scope with the instant claims. PO Suppl. App. Br. 22–23, 26–28. We are also informed that there is no

substantially non-infringing use for the system, and conversely that there are no non-infringing alternatives, resulting in \$80 million in lost profits to SynQor. *Id.* at 25; *see also* Schlecht Decl. paras. 59–63.

Returning to the claimed subject matter, independent claim 1 differentiates from the anticipated subject matter in that it recites “each primary winding having a voltage waveform with a fixed duty cycle and transition times which are short relative to the on-state and off-state times of the controlled rectifiers.” Claim 28 adds the above-quoted claim element and depends from anticipated independent system claim 27. Claim 31 adds the above-quoted element and depends from anticipated independent method claim 30.

Claims 2–19 depend from claim 1 and claim particular voltage levels, types of conversion, output characteristics of the DC power source, signal source, and electronic components for the system of claim 1. Claims 24–26 depend from anticipated claim 20 and also add particular voltage requirements.

Lastly, claims 34–38 add the elements of switching regulators and particular voltage requirements.

Patent Owner argues that there is a nexus between the claims at issue and the objective evidence presented. PO Suppl. App. Br. 23. Requester argues that the objective evidence should not be considered and is not convincing because unregulated intermediate bus architecture is not recited in the claims. Req. App. Br. 21.

We have, *inter alia*, reviewed the technical documents A24–A75 and A105–A201 which include data sheets for the various products found to infringe the ’190 patent.

As an example, we turn to Bel Fuse’s product data sheets, documents A112 et seq. It is apparent that they describe products intended for configuration into a circuit such as that of claims 1 and 20. For example, 07CM-20S/30S (Exhibit A113) describes an unregulated output isolated bus converter “[i]deal for Intermediate Bus Architectures” for powering multiple downstream non-isolated point-of-load converters. Ex. A113, at 1. They deliver output voltages of 8 and 12 volts from a 48 volt input. *Id.* Instant claim 24 recites an input of 36 to 75 volts, and claim 25 recites an output of about 12 volts.

Our review of these documents, in conjunction with the District Court finding of infringement, contributory infringement, and/or induced infringement of claims 2, 8, 10, and 19 of the ’190 patent and the jury award of lost profits suggest that at least claims 24–26 are reasonably commensurate in scope with the products at issue in the trial.

The fact that anticipated claims 20 and 30 do not recite the particular set of words “intermediate bus architecture” does not persuade us of a lack of nexus between the instant claims and the ’497 litigation accused products. We therefore again expressly disagree with the Examiner and Requester that the commercial success is lacking nexus. Req. App. Br. 21.

The Patent Owner next argues that objective evidence establishes commercial success of the claimed invention. PO Suppl. App. Br. 26–28. The Requester argues that the commercial success achieved by the ’497 litigation defendants is not a result of the ’190 patent’s claimed subject matter because:

Even with an intermediate bus, Unregulated IBA [UIBA] was spurred by evolving market forces that had nothing to do with the SynQor patents. In particular, the availability of low-

cost, wide-input non-isolating Point of Load (“POL”) converters was important for the use of the technique. As explained by Robert White in 2003, for example:

“The drivers for the wide adoption of the Intermediate Bus Architecture are: The large number of supply voltages needed in systems and on individual circuit cards in today’s systems and the rapidly decreasing cost of nonisolated, point-of-load (POL) dc-dc converters.”

. . . .

For these reasons, the claims of the ’190 Patent are not coextensive with products sold

Req. Resp’t. Br. 23 (emphasis omitted) (footnote omitted) (quoting Ex. A81, at 802).

The Patent Owner argues that devices covered by the claims replaced previous architectures used in high-end computers and telecommunication equipment, and the number of units sold by the ’497 litigation defendants proves commercial success. PO Suppl. App. Br. 27. The argument is supported by testimony from various sources, including Dr. Schlecht, who we recognize has an interest in this proceeding, but note that the number of 2 million units sold in the United States and 5 million sold worldwide through trial is largely unrefuted. *See* Schlecht Decl. 2–14. Moreover, according to the Patent Owner, the ’497 litigation infringing products constitute substantially the entire market. PO Suppl. App. Br. 27.

Based on the evidence submitted at trial, it was established that the unregulated bus converters described in the defendants’ data sheets have no substantial non-infringing use other than to create infringing, unregulated intermediate bus architecture systems and that there are no suitable non-infringing alternatives to the infringing UIBA systems. On this basis, the jury awarded lost profits. *Id.* at 25.

Based on the above claim language, our analysis, and informed by the judgment and the analysis of the court, we find that the commercial success described by Patent Owner provides an objective indicia tending towards non-obviousness of the claimed invention.

However, in view of the finding of anticipation of claims 20–23, 27, 29, 30, 32, and 33, the issue of obviousness is narrowed to the particular components, waveforms, input and output characteristics, and voltage levels specifically recited in the claims rejected under obviousness in view of the prior art converter of Steigerwald, and the other cited art. An invention is not patentable 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 at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” 35 U.S.C. § 103(a) (2006). This test requires consideration of four factors, among them “objective evidence of nonobviousness” such as commercial success. *Mintz v. Dietz & Watson, Inc.*, 679 F.3d 1372, 1375, 1378–79 (Fed. Cir. 2012).

This secondary evidence, despite being quite strong, is in our view now insufficient to overcome the Examiner’s conclusion of obviousness as regarding the subject matter of claims 1–19, 24–26, 28, 31, and 34–38. The principal difference between the prior art converter and the claimed subject matter are known voltage levels, components, waveforms, and input or output characteristics. As found by the Examiner, utilizing and optimizing known components in a predictable manner presents a strong case of obviousness, and in our view even such evidence as that presented by the Patent Owner in this proceeding does not prevail.

CONCLUSIONS

We have carefully considered the evidence of record, including that of secondary considerations submitted by the Patent Owner. We also have considered the evidence submitted by the Requester and the findings and conclusions of the Examiner. We conclude that a nexus exists between the claims under reexamination and the evidence of infringing products in the litigation.

However, the weight of the objective evidence does not overcome the Examiner's prima facie determination that the claims at issue would have been obvious to one of ordinary skill in the art at the time the invention was made in the rejections involving the Steigerwald references.

The record establishes that claims 1–38 would have been obvious to one of ordinary skill in the relevant art at the time of the effective date of the '190 Patent invention.

We, therefore, sustain the obviousness rejections of claims 1–33 and 35–38, while newly rejecting claim 34.

ORDER

I. The rejection of claims 24–26 under 35 U.S.C. § 103(a) as being unpatentable over Steigerwald '090 is affirmed.

II. The rejection of claims 1, 5–8, 11–13, 17, 18, 24, 28, and 31 under 35 U.S.C. § 103(a) as being unpatentable over Steigerwald '090, Steigerwald '539, and Cobos is affirmed.

III. The rejection of claims 2–4 under 35 U.S.C. § 103(a) as being unpatentable over Steigerwald '090, Steigerwald '539, Cobos, and Pressman is affirmed.

IV. The rejection of claims 9, 10, 14–16, and 19 under 35 U.S.C. § 103(a) as being unpatentable over Steigerwald '090, Steigerwald '539, and Cobos is affirmed.

V. The rejection of claims 1–33 under 35 U.S.C. § 103(a) as being unpatentable over Cobos and Pressman is reversed.

VI. The rejection of claims 34–38 under 35 U.S.C. § 103(a) as being unpatentable over Cobos and Pressman is reversed.

VIII. The rejection of claims 35–38 under 35 U.S.C. § 103(a) over Steigerwald '090, Steigerwald '539, Admitted Prior Art, and Pressman is affirmed.

IX. Claims 34 is newly rejected under 35 U.S.C. § 103(a) as being unpatentable over Steigerwald '090, Steigerwald '539, Admitted Prior Art, Cobos and Pressman.

AFFIRMED IN PART
37 C.F.R. § 41.77(b)

Appeal 2014-001733
Reexamination Control 95/001,702

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