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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

VICOR CORPORATION,
Requester,

v.

SYNQOR, INC.,
Patent Owner.

Appeal 2018-000038
Reexamination Control 95/001,702
Patent 7,072,190 B2
Technology Center 3900

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

SIU, *Administrative Patent Judge*.

DECISION

In an earlier Decision, Appeal No. 2014-001733, mailed May 2, 2016 (“Decision”), claim 34 was newly rejected under 35 U.S.C. § 103(a) as unpatentable over Steigerwald ’090¹ (incorporating Steigerwald ’539² by reference), Cobos,³ Pressman,⁴ and Admitted Prior Art (APA). Decision 16–17. Patent Owner elected to reopen prosecution under 37 C.F.R. § 41.77(b)(1) (“Patent Owner’s Response Requesting Reopening of Prosecution Before the Examiner Under 37 C.F.R. § 41.77(b)(1),” filed July 1, 2016, “PO Request”) in which Patent Owner provided arguments in support of newly rejected claim 34. Requester filed comments pursuant to 37 C.F.R. § 41.77(c) in response to Patent Owner’s request to reopen prosecution (“Third-Party Requester Comments,” filed August 1, 2016, “3PR Comments”). The matter was remanded to the Examiner for consideration of Patent Owner’s and Requester’s comments and/or evidence as they pertain to the new ground of rejection.

In accordance with 37 C.F.R. § 41.77(d), the Examiner determined that “the rejection [of claim 34] is maintained.” Examiner’s Determination, dated June 22, 2016 (“Examiner’s Determination”), 5. Hence, the Examiner

¹ U.S. Patent No. 5,377,090, issued December 27, 1994 (“Steigerwald ’090”).

² U.S. Patent No. 5,274, 539, issued December 28, 1993 (“Steigerwald ’539”).

³ J.A. Cobos & J. Uceda, “Low Output Voltage DC/DC Conversion,” 20th International Conference on Industrial Electronics, Control, and Instrumentation 1676–1681 (1994) (“Cobos”).

⁴ Abraham I. Pressman, “Switching and Linear Power Supply, Power Converter Design” (1977) (“Pressman”).

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rejects claim 34 under 35 U.S.C. § 103(a) as unpatentable over Steigerwald '090/'539, Cobos, Pressman, and APA.

In response to Examiner's Determination, Patent Owner filed "Patent Owner's Comments in Response to Examiner's Determination Under 37 C.F.R. § 41.77(d)," filed July 21, 2017 ("PO Comments on Exr's Determ."), and Requester filed "Third-Party Requester Comments," filed August 21, 2017 ("3PR Comments on Exr's Determ.>").

Pursuant to 37 C.F.R. § 41.77(f), the proceeding has been returned to the Board so that we may reconsider the matter and issue a new decision.

Patent Owner argues that one of ordinary skill in the art "would not have modified . . . Steigerwald '090/'539 . . . with Cobos or Pressman" because (1) the system of Steigerwald '090/'539 does not "necessarily contain[] an inductor . . . in the current path as a controlled rectifier," (2) that a "synchronous rectifier is **not** an inductor in itself," (3) that "including an inductor in the current path would substantially interfere with powering Steigerwald's system," (4) that Steigerwald '539 "consistently teaches a POSA **not** to include an inductor," and (5) that "Steigerwald '539 teaches a POSA to keep [inductance] as low as possible," PO Request 6, 8, 9, 11, 12. Hence, Patent Owner appears to argue that Steigerwald '090/'539 discloses that the absence of any inductance is required but that secondary references (e.g., Pressman) disclose the mandatory presence of inductance. We are not persuaded by Patent Owner's argument.

Even assuming Patent Owner's contention to be correct that Pressman, for example, somehow discloses the mandatory presence of inductance (we note Patent Owner has made an insufficient showing of this

allegation), we are still not persuaded by Patent Owner's argument at least because Steigerwald '539 (incorporated by reference into Steigerwald '090 1:6–12) explicitly discloses that prior art power systems include an “energy-storage capacitor C_{out} , having an equivalent series resistance ESR and an equivalent series inductance ESL associated therewith.” Steigerwald '539 2:49–52; *see also* Decision 8. Hence, Steigerwald '539 (incorporated by reference into Steigerwald'090) discloses the *presence* of “inductance” in prior art systems and does not disclose the preclusion of all inductance, as Patent Owner appears to contend.

Also, Steigerwald '539 (incorporated by reference by Steigerwald '090) discloses an embodiment in which an output path includes an “energy-storage capacitance” and “ESL [i.e., series inductance] of the energy-storage capacitor C_e .” Steigerwald '539 3:50, 61–62. Here again we note that, contrary to Patent Owner's argument, Steigerwald '539 does not disclose the absence of inductance or that the presence of any inductance would have somehow “frustrated” its power system. On the contrary, Steigerwald '539 discloses the *presence* of inductance and does *not* disclose system frustration based on the presence of the inductance.

We also note that Pressman discloses a switching regulator that operates at a frequency range such that “inductors . . . are small.” Pressman 289. Patent Owner does not assert or demonstrate sufficiently that the “small” inductor of Pressman is large enough to, in fact, “frustrate” the system of Steigerwald '090/'539 that itself includes inductance. Given the weight of the evidence, one of skill in the art would have understood that the “small” inductor of Pressman would have been sufficiently “small” to avoid

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any potential problems of “frustration” in Steigerwald ’090/’539 given that Steigerwald ’090/’539 explicitly discloses the presence of inductance without “frustration.”

Patent Owner argues that it would not have been obvious to one of ordinary skill in the art to have “selected” an embodiment of Steigerwald ’090/’539 “that has synchronous rectifiers” due to various alleged undesirable features of such a selection. PO Request 12. We are not persuaded by Patent Owner’s argument. Claim 34 of the ’190 patent (dependent from claim 1) recites “plural controlled rectifiers,” as does claim 20 of the ’190 patent. The Federal Circuit has previously determined that “Steigerwald ’090 incorporates by reference . . . teachings of Steigerwald ’539” and that the combined (single) reference Steigerwald ’090/’539 discloses a DC power system containing “synchronous rectifiers SRa and SRb” and “anticipates all elements of representative claim 20 [of the ’190 patent].” *Vicor Corp. v. SynQor, Inc.*, 603 F. App’x 969, 974–975 (Fed. Cir. 2015). In view of the explicit disclosure by Steigerwald ’090/’539 of a DC power system with “controlled” or “synchronous” rectifiers, Patent Owner does not explain sufficiently how the alleged undesirable features of the use of synchronous rectifiers (even assuming the cited features are, in fact, undesirable) indicates that Steigerwald ’090/’539, in fact, *fails* to disclose this feature or how an alleged disadvantage of a rectifier negates an explicit disclosure of using the rectifier.

Patent Owner argues that it would not have been obvious to one of ordinary skill in the art to have combined the teachings of Cobos and Steigerwald ’090/’539 because “Cobos and the Steigerwald ’090/’539 . . .

are directed to distinctly different switching frequency ranges,” and that the alleged “frequency differential makes the references incompatible because the much lower Cobos switching frequency interferes with Steigerwald ’090’s goal to make his power converter sufficiently small so that it could fit into the transmit/receive (T/R) module with the load.” PO Request 17. We are not persuaded by Patent Owner’s argument for at least the reasons set forth by Requester. 3PR Comments 22–28.

As Requester points out, and contrary to Patent Owner’s allegation, Steigerwald ’090/’539 does not disclose “a minimum frequency of 3.6MHz,” does not disclose a minimum frequency at all, and Dr. Steigerwald testifies to a frequency range of *less than* 3.6MHz (i.e., 1 or 0.5 MHz – which is within the frequency range (300–700 kHz) of at least one embodiment of Cobos (*see* Cobos 1679, col. 2)). 3PR Comments 22–24. Contrary to Patent Owner’s allegation, the evidence points strongly to the *lack* of a frequency range discrepancy between the systems of Cobos and Steigerwald ’090/’539.

Patent Owner also relies on another article (the “Casey article”) as further support that Steigerwald ’090/’539 requires a frequency range of greater than 3.6MHz but, as Requester states, the “Casey article” also fails to disclose a frequency range of less than 3.6MHz and, instead, merely discloses that a “base frequency of 3.6 MHz” was selected — not that the “base frequency of 3.6MHz” is the minimum frequency permissible. 3PR Comments 25–26. Patent Owner does not provide a citation to the “Casey article” or a technical reason supporting Patent Owner’s contention that the

“Casey article” somehow discloses that Steigerwald ’090/’539 requires a frequency range of greater than 3.6MHz.

We are also persuaded by Requester that, contrary to Patent Owner’s allegations, Cobos fails to disclose a “maximum” frequency that is less than the alleged “minimum” frequency of Steigerwald ’090/’539. As noted above, we agree with Requester that Steigerwald ’090/’539 fails to disclose a “minimum frequency.” Further, as Requester points out, Cobos merely discloses the use of “FAC technology” and “three topologies” operating at various frequencies at varying levels of efficiency. Cobos does not disclose a maximum (or minimum) frequency of operation. 3PR Comments 27–28, Cobos 1679, Figs. 7–8. In fact, as previously noted, Cobos explicitly discloses a frequency range corresponding to a frequency range that Dr. Steigerwald testifies is used in the system disclosed in the Steigerwald ’090/’539 reference.

Patent Owner argues that it would not have been obvious to one of ordinary skill in the art to have combined the teachings of Steigerwald ’090/’539 (i.e., a DC power system with a regulator) and Pressman (a DC power system with a “switching” regulator) because “switching regulators include inductors [that] are expressly prohibited from the current path of the Steigerwald ’090/’539” system. PO Request 24. We are not persuaded by Patent Owner’s argument for at least the reasons previously stated and reasons set forth by Requester. 3PR Comments 28–32. As discussed above, even assuming that Pressman, for example, discloses the presence of inductance in a switching regulator, as Patent Owner alleges, we are still not persuaded by Patent Owner’s argument because Steigerwald’090/’539 fails

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to disclose a requirement of the *absence* of inductance. On the contrary, Steigerwald '090/'539 explicitly discloses the *presence* of inductance and Pressman explicitly discloses any inductance that may be present is “small.” *See* discussion above.

Patent Owner argues that Steigerwald '090/'539 discloses “the high (100V) voltage)” but fails to disclose “the claimed voltage range of 36–75 volts” in claim 34. PO Request 36. We are not persuaded by Patent Owner’s argument for at least the reasons set forth by Requester. 3PR Comments 32–34. We also note that the '190 patent discloses that a DC input that provides a voltage within the range of 36 to 75 volts (i.e., 48V input level) was conventionally known and commonly used in the art. Spec. 1:30 (stating that prior art DC power systems in the “Background of the Invention” draws power “from a 48 volt DC source”).

DECISION

We affirm the Examiner’s determination maintaining the rejection of claim 34 under 35 U.S.C. § 103(a) as unpatentable over Steigerwald '090/'539, Cobos, Pressman, and APA.

Requests for extensions of time in this *inter partes* reexamination proceeding are governed by 37 C.F.R. §§ 1.304, 1.956, and 41.79(e). *See* 37 C.F.R. § 41.79.

In the event neither party files a request for rehearing within the time provided in 37 C.F.R. § 41.79, and this decision becomes final and appealable under 37 C.F.R. § 41.81, a party seeking judicial review must

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timely serve notice on the Director of the United States Patent and Trademark Office. *See* 37 C.F.R. §§ 90.1 and 1.983.

37 C.F.R. § 41.77(f)

Patent Owner:

GREENBLUM & BERNSTEIN, P.L.C.
1950 ROLAND CLARKE PLACE
RESTON VA 20191

Third Party Requester:

SMITH BALUCH LLP
100 M STREET SE
SUITE 600
WASHINGTON, DC 20003