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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte MARTIN KALTENEGGER, SIMON BREWERTON, and MICHAEL HAUSMANN

Appeal 2019-004675
Application 13/542,470
Technology Center 2800

Before JAMES C. HOUSEL, MONTÉ T. SQUIRE, and BRIAN D. RANGE, *Administrative Patent Judges.*

RANGE, *Administrative Patent Judge.*

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant appeals from the Examiner's decision to reject claims 1–30.[1,2] We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

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[1] We use the word "Appellant" to refer to "applicant" as defined in 37 C.F.R. § 1.42. Appellant identifies the real party in interest as INFINEON TECHNOLOGIES AG. Appeal Br. 2.

[2] Dependent claims 31–33 were added in the amendment after final rejection and are not subject to this appeal. Appeal Br. 7.

CLAIMED SUBJECT MATTER[3]

Appellant describes the invention as relating to monitoring a circuit with a signature watchdog. Spec. ¶ 1. A conventional signature watchdog generates requests for a computer processor, receives a response, and compares the response to a conventional response. *Id.* at ¶ 2. Watchdog monitoring of the process may be of particular importance for safety-critical systems. *Id.* ¶ 28. The Specification states that the inventive watchdog 40 (*see id.* at Fig. 1) differs from a conventional watchdog because it sends a pass signal (pass pulse) to an evaluation unit each time a response is received from the processor 1 that matches the expected response. *Id.* at ¶ 29; *see also* Spec. Fig. 2; Appeal Br. 3.

Three independent claims are on appeal. Claim 1, reproduced with emphasis added to a key recitation, is illustrative:

> 1. A method of monitoring a processing circuit, the method comprising:
>
> causing the processing circuit to generate a response to a request;
>
> comparing the response with an expected response;
>
> generating a pass pulse when the response matches the expected response;
>
> repeating the causing, comparing and generating steps a plurality of times so as to generate a sequence of pass pulses; and
>
> **determining a frequency at which the pass pulses occur in the sequence, wherein the frequency is based on a number of pass pulses in the sequence of pass pulses in a predefined time period.**

[3] In this Decision, we refer to the Final Office Action dated May 8, 2018 ("Final Act."), the Appeal Brief filed December 12, 2018 ("Appeal Br."), the Examiner's Answer dated April 5, 2019 ("Ans."), and the Reply Brief filed May 29, 2019 ("Reply Br.").

Appeal Br. 25 (Claims App). The other two independent claims on appeal, claims 14 and 24, recite apparatus with a circuit configured to, among other things, "determine a frequency at which the pass pulses occur in the sequence, wherein the frequency is based on a number of pass pulses in the sequence of pass pulses in a predefined time period." *Id.* at 27, 29.

REFERENCES

The Examiner relies upon the prior art below in rejecting the claims on appeal:

Name	Reference	Date
Avery	US 3,810,101	May 7, 1974
Cabrera et al. ("Cabrera")	US 5,970,936	Oct. 26, 1999
Yamawaki	US 2008/0080353 A1	Apr. 3, 2008
McDowell	US 2009/0100125 A1	Apr. 16, 2009
Riedinger et al. ("Riedinger")	US 7,590,509 B2	Sept. 15, 2009
Weatherhead et al. ("Weatherhead")	US 7,894,917 B2	Feb. 22, 2011

REJECTIONS

The Examiner maintains the following rejections on appeal:[4]

[4] The Examiner withdrew a rejection of claims 1–30 under 35 U.S.C. § 101. Ans. 2–3.

A. Claims 1, 14, 24, and 25 under 35 U.S.C. § 103 as obvious over Riedinger in view of Yamawaki. Final Act. 8.
B. Claims 2, 3, 6–8, 15, 16, and 18 under 35 U.S.C. § 103 as obvious over Riedinger, Yamawaki, and McDowell. *Id.* at 12.
C. Claims 4, 5, and 17 under 35 U.S.C. § 103 as obvious over Riedinger, Yamawaki, McDowell, and Cabrera. *Id.* at 13.
D. Claims 9, 10, 19, 20, and 29 under 35 U.S.C. § 103 as obvious over Riedinger, Yamawaki, McDowell, and Avery. *Id.* at 14.
E. Claims 11–13, 21–23, and 28 under 35 U.S.C. § 103 as obvious over Riedinger, Yamawaki, and Weatherhead. *Id.* at 15.
F. Claims 26, 27, and 30 under 35 U.S.C. § 103 as obvious over Riedinger, and Yamawaki. *Id.* at 17.

OPINION

The Examiner has the initial burden of establishing a prima facie case of obviousness under 35 U.S.C. § 103. *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992) ("[T]he examiner bears the initial burden, on review of the prior art or on any other ground, of presenting a *prima facie* case of unpatentability."). To establish a prima facie case of obviousness, the Examiner must show that each and every limitation of the claim is described or suggested by the prior art or would have been obvious based on the knowledge of those of ordinary skill in the art or the inferences and creative steps a person of ordinary skill in the art would have employed. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 417 (2007); *In re Fine*, 837 F.2d 1071, 1074 (Fed. Cir. 1988).

To resolve the issues before us on appeal, we focus on the Examiner's findings and determinations that relate to the error Appellant identifies.

The Examiner finds that Riedlinger "does not explicitly disclose a frequency at which the pass pulses occur in the sequence wherein the frequency is based on a number of pass pulses in the sequence of pass pulses in a predefined time period." Final Act. 9. The Examiner finds that Yamawaki teaches "a test method for determining a frequency at which test passes occur in a sequence wherein the frequency is based on a number of passes in the sequence in a time period." *Id.* (citing Yamawaki ¶¶ 90, 90, and Fig. 10). The Examiner determines that it would have been obvious to incorporate this teaching of Yamawaki into Riedlinger "for the benefit of determining the efficiency of the processing circuit." *Id.*

Appellant argues that Yamawaki does not disclose determining a frequency or determining a frequency based on a number of pass pulses in a predefined time period. Appeal Br. 15. Appellant further argues that the Examiner construes "frequency" too broadly, that the Examiner has not adequately explained why a person of skill in the art would have combined Yamawaki's teachings with Riedlinger, and that the Examiner's use of the Cirello reference does not adequately establish prima facie obviousness. *Id.* at 16–18. For the reasons explained below, Appellant's arguments are persuasive of Examiner error.

We begin our analysis with claim construction. In the August 16, 2018, Advisory Action ("Advisory Action"), the Examiner interprets "the term frequency to be a number of instances of a given event." Claim 1, for example, states that "frequency is based on number of pass pulses in the sequence of pass pulses in a predefined time period." Similarly, the

Specification states that "the evaluation unit 50 is configured to evaluate a frequency at which signal pulses are received" and states "[t]his may include [evaluating] a number of pass signals received within a predefined time frame." Spec. ¶ 29. Given this context, "frequency" refers to a number of instances of given event in a time period.

Next, with respect to Yamawaki's teachings, we agree with Appellant that the Examiner has not adequately established that Yamawaki teaches determining a frequency that is based on a number of pass pulses in a predefined time period. Rather, the portions of Yamawaki that the Examiner cites teach counting instances of signal SC having a logic value of "0" until the count value reaches a predetermined value (for example, 3). Yamawaki ¶¶ 90, 98. The Examiner also cites paragraph 52 of Yamawaki. Ans. 3–4. That portion of Yamawaki, however, appears to teach that some signals are generated, in part, based on a clock signal. It does not indicate counting instances of a signal over a predefined time period. Reply Br. 2–4.

The Examiner determines that a person of skill would have incorporated counter 41 of Yamawaki into Riedlinger because "having no pass pulses within a wide time frame would indicate an unreliable processor." Appeal Br. 6. This reasoning, however, does not persuasively address how or why a person of skill in the art would have arrived at claim 1's recited "determining a frequency . . . in a predefined time period" (and claim 14 and 24's similar recitations) based on the teachings of Riedlinger and Yamawaki. In particular, a reason to reach the claim's recitation is lacking because the Examiner does not establish that either Ridlinger or Yamawaki teach or suggest the "determining a frequency . . . in a predefined time period" recitation; the Examiner also does not persuasively explain why

the references' combined teachings would lead a person of skill to reach this recitation.

In the Advisory Action, the Examiner states that "it is known in the art that a frequency can be evaluated within a time period as evidenced by prior art such as Circello." Advisory Action 2. In the Answer, the Examiner clarifies that the Examiner "made reference to [Circello] to show that counters are commonly used to count events within a time frame." Ans. 5. The Examiner, however, does not include Circello as part of any rejection. *In re Hoch*, 428 F.2d 1341, 1342 n.3, 166 USPQ 406, 407 n.3 (CCPA 1970) ("Where a reference is relied on to support a rejection,[] there would appear to be no excuse for not positively including the reference in the statement of rejection."). Moreover, even if we accept the Examiner's finding that "counters are commonly used to count events within a time frame," this finding fails to persuasively address the issue at hand—whether or not Appellant's claims are obvious over Riedlinger in view of Yamawaki. In particular, the finding does not establish that either reference teaches "determining a frequency . . . based on a number of pass pulses in a predefined time period" and does not assist in establishing a reason to combine the teachings of Riedlinger and Yamawaki to reach "determining a frequency . . . based on a number of pass pulses in a predefined time period."

The Examiner's treatment of dependent claims (including assertion of additional references to address certain dependent claims) does not cure the error addressed above. We, therefore, do not sustain the Examiner's rejections.

DECISION SUMMARY

In summary:

Claims Rejected	**35 U.S.C. §**	**Reference(s)/Basis**	**Affirmed**	**Reversed**
1, 14, 24, 25	103	Riedinger, Yamawaki		1, 14, 24, 25
2, 3, 6–8, 15, 16, 18	103	Riedinger, Yamawaki, McDowell		2, 3, 6–8, 15, 16, 18
4, 5, 17	103	Riedinger, Yamawaki, McDowell, Cabrera		4, 5, 17
9, 10, 19, 20, 29	103	Riedinger, Yamawaki, McDowell, Avery		9, 10, 19, 20, 29
11–13, 21–23, 28	103	Riedinger, Yamawaki, Weatherhead		11–13, 21–23, 28
26, 27, 30	103	Riedinger, Yamawaki		26, 27, 30
Overall Outcome				1–30

REVERSED