

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte SHEVRIN MOLOUDI

Appeal 2008-5584
Application 10/928,040¹
Technology Center 2800

Decided: November 20, 2008

Before KENNETH W. HAIRSTON, MAHSHID D. SAADAT,
and KEVIN F. TURNER, *Administrative Patent Judges*.

HAIRSTON, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellant appeals under 35 U.S.C. § 134 from the Examiner's final rejection of claims 1 to 8. We have jurisdiction under 35 U.S.C. § 6(b).

¹ Application filed August 28, 2004, which is a continuation of Application Serial No. 10/409,213 filed April 8, 2003, and issued as U.S. Patent No. 6,801,092. The real party in interest is Broadcom Corporation.

We will sustain the rejection.

The Claimed Invention

Appellant's claimed invention is directed to a controlled oscillation module (106 or 206 in Figs. 17 or 18) including a current source, an inductive load, a switching transistor section operating in accordance with an adjustable operating parameter, and an adjustable parameter module to produce an adjustable operating parameter and to limit an output oscillation frequency range "to avoid a frequency of interest" (claim 1 on appeal).

Claim 1 is representative of the claims on appeal, and reads as follows:

1. A controlled oscillation module comprises:

a current source;

an inductive load;

a switching transistor section operably coupled to the current source and to the inductive load to convert a control signal into an output oscillation in accordance with an adjustable operating parameter of the controlled oscillation module; and

an adjustable parameter module operably coupled to produce the adjustable operating parameter, wherein the adjustable operating parameter limits a frequency range of the output oscillation with respect to a range of the control signal to avoid a frequency of interest.

The Rejection

The prior art relied upon by the Examiner in rejecting the claims on appeal is:

Kwek

US 6,774,736 B1

Aug. 10, 2004

(effective filing date of April 8, 2003)

The Examiner rejected claims 1 to 8 under 35 U.S.C. § 102(e) as being anticipated based upon the teachings of Kwek.

ISSUES

First Issue: Claims 1 and 3 to 8 (First Claim Group)

Appellant contends that the applied reference to Kwek does not teach the limitation of “a frequency range of the output oscillation with respect to a range of the control signal to avoid a frequency of interest” as recited in independent claim 1 (App. Br. 4) (emphasis in original).

The Examiner states that Kwek teaches all of the limitations of claim 1, and states that Kwek inherently teaches the limitation, “to avoid a frequency of interest,” since Kwek’s oscillator limits frequency range (Ans. 3-4).

Appellant has not separately argued the merits of claims 3 to 8, and instead Appellant relies on the arguments presented with respect to the patentability of claim 1 (*see* App. Br. 4). We consider claim 1 as representative of a first group consisting of claims 1 and 3 to 8. Accordingly, we confine our discussion of the first claim group to claim 1, with claims 3 to 8 standing or falling with representative claim 1. *See* 37 C.F.R. § 41.37(c)(1)(vii).

Accordingly, the issue with respect to claims 1 and 3 to 8 is: Has Appellant shown that the Examiner erred in finding that the limitation of representative claim 1 of avoiding a frequency of interest is inherently taught by Kwek?

Second Issue: Claim 2 (Second Claim Group)

Appellant separately argues claim 2, and contends that Kwek does not teach that the frequency of interest “is an image frequency of output oscillation frequency and a local oscillation frequency” as recited in dependent claim 2 (App. Br. 4-5) (emphasis in original).

The Examiner replies that the “image frequency” limitation is part of a “wherein” clause and is intended use which does not differentiate the claimed oscillation module from the oscillation device of Kwek (Ans. 4-5).

Accordingly, the issue with respect to claim 2, the sole claim in the second claim group, is: Has Appellant shown that the Examiner erred in determining that the “wherein” clause, including the “image frequency” limitation, states an intended use which does not limit the claim?

Rather than repeat the arguments of Appellant or the Examiner, we refer to the Brief² and the Answer³ for their respective details. In this decision, we have considered only those arguments actually made by Appellant. Arguments which Appellant could have made but did not make in the Brief have not been considered and are deemed to be waived. *See* 37 C.F.R. § 41.37(c)(1)(vii).

FINDINGS OF FACT

1. As indicated *supra*, Appellant describes and claims a controlled oscillation module (106 or 206 in Figs. 17 or 18) for use in phase locked

² We refer to the Appeal Brief filed December 11, 2006, throughout this opinion.

³ We refer to the Examiner’s Answer mailed May 8, 2007, throughout this opinion.

loop circuits (*see* Figs. 7, 14, 15, or 16) of wireless communication devices such as cell phones, two-way radios, PDAs, PCs, etc. (Spec. 1-5; *see* Fig. 5; *see also* App. Br. 2). Appellant discloses a controlled oscillation module (106 or 206 in Figs. 17 or 18) including a current source, an inductive load, switching transistor section operating in accordance with an adjustable operating parameter, and an adjustable parameter module to produce the adjustable operating parameter and to limit the output oscillation frequency range to avoid a frequency of interest (Spec. 5 and 12).

2. Kwek teaches a voltage controlled oscillator (VCO) (220 in Fig. 2) as part of a phase-locked loop circuit (Fig. 1, 100). Kwek teaches that VCO 220 includes a current source (current mirror at bottom of Fig. 2), inductive load 225, switching transistor section 230, control signal (Vcon and d0-d3), and an adjustable parameter module (230, 235, 240, 246; col. 3, ll. 35-63) (*see* Ans. 3-4). Kwek teaches adjusting the parameters of the oscillator 220 to limit a frequency range of the output oscillation with respect to the range of the control signal to avoid a frequency, or frequencies, of interest (col. 3, l. 35 to col. 4, l. 23; *see* Fig. 3 showing ranges of frequencies).

PRINCIPLES OF LAW

Analysis of whether a claim is patentable over the prior art under 35 U.S.C. § 102 begins with a determination of the scope of the claim. “During examination, ‘claims ... are to be given their broadest reasonable interpretation consistent with the specification, and ... claim language should be read in light of the specification as it would be interpreted by one of ordinary skill in the art.’” *In re Am. Acad. of Sci. Tech Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004); *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313

(Fed. Cir. 2005) (en banc); *In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir. 1997). Apparatus claims must be structurally distinguishable from the prior art, and they “must be distinguished from the prior art in terms of structure rather than function. *In re Schreiber*, 128 F.3d 1473, 1477-78 (Fed. Cir. 1997); *see* MPEP § 2114.

Anticipation is established when a single prior art reference discloses expressly or under the principles of inherency each and every limitation of the claimed invention. *Atlas Powder Co. v. IRECO, Inc.*, 190 F.3d 1342, 1347 (Fed. Cir. 1999); *In re Paulsen*, 30 F.3d 1475, 1478-79 (Fed. Cir. 1994). To establish inherency, the evidence must make clear that the missing descriptive matter is “necessarily present” in the thing described in the reference. *In re Robertson*, 169 F.3d 743, 745 (Fed. Cir. 1999). “Under the principles of inherency, if the prior art necessarily functions in accordance with, or includes, the claimed limitations, it anticipates.” *In re Cruciferous Sprout Litig.*, 301 F.3d 1343, 1349 (Fed. Cir. 2002).

ANALYSIS

Issue 1: Has Appellant shown that the Examiner erred in finding that the limitation of representative claim 1 of avoiding a frequency of interest is inherently taught by Kwek?

Appellant contends that Kwek does not teach the limitation of “to avoid a frequency of interest” as recited in independent claim 1 (App. Br. 4) (emphasis in original).

The Examiner contends that Kwek inherently meets the “wherein” clause of claim 1 because Kwek teaches adjusting the capacitance of the

oscillator to limit the frequency range (Ans. 3-4).⁴ We agree with the Examiner's findings of fact with respect to the teachings of Kwek (Finding of Fact 2; Ans. 3-4), and provide an amplification to the Examiner's discussion of Kwek as follows.

Kwek's VCO operates to limit a frequency range of the output oscillation with respect to a range (*e.g.*, V1-V2) of the control signal (Fig. 3). The range of the control signal is limited to only a range corresponding to a limited range between V1 and V2 which produces linear results (Fig. 3; col. 3, l. 64 to col. 4, l. 23) (Finding of Fact 2). Thus, Kwek teaches avoiding a frequency of interest (those frequencies resulting from control voltages outside the range of V1-V2). The fact that multiple frequencies are avoided does not change the analysis. Because Kwek's VCO necessarily functions in accordance with, and includes, the limitations of the "wherein" clause of claim 1, it anticipates the subject matter of claim 1. *Cruciferous Sprout Litig.*, 301 F.3d at 1349.

In view of the foregoing, Appellant has not shown that the Examiner erred in determining that Kwek inherently includes the limitation found in claim 1 of "avoiding a frequency of interest," since Kwek "avoids" frequencies which are associated with control voltages found outside the V1-V2 range. Kwek either expressly or inherently teaches all of the structural limitations of representative claim 1 on appeal.

⁴ Claim 1 recites, "wherein the adjustable operating parameter limits a frequency range of the output oscillation with respect to a range of the control signal to avoid a frequency of interest." (Claim 1 on appeal).

Issue 2: Has Appellant shown that the Examiner erred in determining that the “wherein” clause, including the “image frequency” limitation, states an intended use which does not limit the claim?

Appellant contends that the specific language of the “wherein” clause of claim 2,⁵ is not taught by Kwek (App. Br. 4-5).

The Examiner contends that the “wherein” clause of claim 2 is an intended use, and therefore does not serve to differentiate the claimed apparatus from Kwek (Ans. 4-5). We agree with the Examiner for the reasons given below.

Apparatus claims must be structurally, rather than functionally, distinguishable from the prior art. *Schreiber*, 128 F.3d at 1477-78 (The absence of a disclosure in a prior art reference relating to function did not defeat the Board’s finding of anticipation of claimed apparatus because the limitations at issue were found to be inherent in the prior art reference). “It is well settled that the recitation of a new intended use for an old product does not make a claim to that old product patentable. *Id.* at 1477. In the instant case, the Appellant has not shown error in the Examiner’s rejection of claim 2 as being anticipated by Kwek, since the phrase “wherein the frequency of interest is an image frequency of output oscillation frequency and a local oscillation frequency” states an intended use and is functional. The “wherein” clause of claim 2 fails to further define any structural element which differentiates the apparatus of claim 2 from that of claim 1.

⁵ Claim 2 recites, “wherein the frequency of interest is an image frequency of output oscillation frequency and a local oscillation frequency.” (Claim 2 on appeal).

Specifically, claim 1 recites structural elements such as a current source, an inductive load, a switching transistor section, and an adjustable parameter module. Claim 2, which depends directly from claim 1, contains no other structural limitations and merely characterizes the frequency of interest as being an image frequency. As discussed above with respect to Issue 1 and in Finding of Fact 2, Kwek teaches all of the structural limitations of claim 1. Thus, the recitation in claim 2 of a new intended use (*i.e.*, avoiding an image frequency) for an old product (*i.e.*, the oscillator of claim 1) does not make claim 2 patentable. *Id.* at 1477.

Additionally, one of ordinary skill in the art at the time of Appellant's invention would have known that image frequencies exist in VCOs or oscillation modules used in phase-locked loops and wireless communication devices (*see* Spec. 1-5). In fact, Appellant describes in the Specification that prior art VCOs for PLLs recognize the need to avoid image frequencies to prevent "false locking on an image frequency of the output frequency and local oscillation." (Spec. 4). Appellant further recognizes that output oscillations include image frequencies and are known in the art (Figs. 3 and 4; Spec. 4-5). Thus, the evidence (*e.g.*, the Specification and knowledge in the art) makes clear that an image frequency is necessarily present in the output oscillation described in Kwek. *See Robertson*, 169 F.3d at 745. Appellant has not shown that the system in Kwek is incapable of avoiding an image frequency. Accordingly, *even if* we disagreed with the Examiner's intended use position with respect to claim 2, we find that Kwek inherently teaches the limitations of the "wherein" clause of claim 2.

In view of the foregoing, Appellant has not shown that the Examiner erred in determining that the "wherein" clause of claim 2, including the

Appeal 2008-5584
Application 10/928,040

“image frequency” limitation, states an intended use which does not further limit claim 2. In summary, Kwek either expressly or inherently teaches all of the limitations of claim 2 on appeal.

CONCLUSION OF LAW

For the foregoing reasons, Appellant has not shown that the Examiner erred in rejecting claims 1 to 8 under § 102(e) as being anticipated by Kwek.

ORDER

We affirm the Examiner’s rejection of claims 1 to 8.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

KIS

GARLICK HARRISON & MARKISON
P. O. BOX 160727
AUSTIN, TX 78716-0727