UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte NICOLAS CONSTANTINIDIS and GUILLAUME CRINON

Appeal 2009-003290
Application 10/149,299
Technology Center 2600

Decided: January 5, 2009

Before JOHN C. MARTIN, MAHSHID D. SAADAT, and ROBERT E. NAPPI, *Administrative Patent Judges.*

NAPPI, *Administrative Patent Judge.*

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134(a) of the final rejection of claims 1 through 6. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm the Examiner's rejection of these claims.

INVENTION

The invention is directed towards an amplification circuit whose gain is variable in a quasi-linear manner. *See* page 2 of Appellants' Specification.

Claim 1 is representative of the invention and reproduced below:

> 1. An amplification circuit having an overall gain which varies continuously as a function of the value of a control signal, which circuit comprises a plurality of amplification branches each branch including a respective transfer function circuit implementing a different transfer function, each branch having a gain that makes a contribution to the overall gain, respective sizes of respective contributions, within a continuous range, being determined by the control signal.

REFERENCES

Tanimoto	US 5,079,515	Jan. 7, 1992
Peterzell	US 5,722,063	Feb. 24, 1998
Tsumura	US 5, 796,306	Aug. 18, 1998
Alexanian	US 6,392,487 B1	May 21, 2002
Gilbert	US 6,445,248 B1	Sep. 3, 2002

REJECTION AT ISSUE

Claim 1 is rejected by the Examiner under 35 U.S.C. § 103(a) as being unpatentable over Tsumura in view of Tanimoto. The Examiner's rejection is on pages 4 and 5 of the Answer.[1]

Claim 2, is rejected by the Examiner under 35 U.S.C. § 103(a) as being unpatentable over Tsumura in view of Tanimoto and Alexanian. The Examiner's rejection is on pages 5 through 7 of the Answer.

Claims 3 through 5 are rejected by the Examiner under 35 U.S.C. § 103(a) as being unpatentable over Tsumura in view of Tanimoto and Alexanian and Gilbert. The Examiner's rejection is on pages 7 and 8 of the Answer.

Claim 6, is rejected by the Examiner under 35 U.S.C. § 103(a) as being unpatentable over Tsumura in view of Tanimoto and Peterzell. The Examiner's rejection is on pages 8 and 9 of the Answer.

ISSUES

Appellants argue, on pages 6 through 8 of the Brief,[2] that the rejection of independent claim 1 is in error. Appellants assert that one skilled in the art would recognize that the circuit branches of Tsumura and Tanimoto are distinctly different and that attempts to compare them leads to confusion. Appellants argue that the teachings of Tanimoto may be applied to each

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[1] Throughout the opinion, we make reference to the Answer, mailed November 5, 2007, for the respective details thereof.

[2] Throughout the opinion, we make reference to the Appeal Brief received July 20, 2007, for the respective details thereof.

branch of Tsumura's circuit but that such a combination would not result in an appreciable difference between the transfer functions of the branches as claimed. Brief 7.

Thus, Appellants' arguments present us with the issue:

Have Appellants shown that the Examiner erred in finding that the combination of Tsumura and Tanimoto teach each branch including a transfer function circuit implementing a different transfer function as recited in claim 1?

Appellants' arguments directed to the rejections of claims 2 through 6 assert the claims are allowable as they depend upon claim 1. Accordingly, Appellants' arguments do not present us any additional issues with respect to the rejections of claims 2 through 6.

PRINCIPLES OF LAW

On the issue of obviousness, the Supreme Court has stated "[t]he obviousness analysis cannot be confined by a formalistic conception of the words teaching, suggestion, and motivation." *KSR Int'l., Co. v. Teleflex Inc.*, 550 U.S. 398, 419 (2007). Further, the Court stated "[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results." *KSR*, 550 U.S. at 416.

FINDINGS OF FACT

1. Tsumura teaches a wide range variable gain amplifier apparatus. Abstract.
2. Tsumura's amplifier apparatus includes several variable gain units, branch circuit elements 2-1, 2-2 … 2-n of figure 3. The output of

each of the branches is input to a combining unit to produce output S_{out}. Col. 4, ll. 4-9.

3. The variable gain units are comprised of two variable gain amplifiers and a fixed gain amplifier. Each variable gain amplifier is responsive to a control input and the fixed gain amplifier is responsive to V_{cci}. *See* figures 8, 9 and Col. 5, ll. 40-50.
4. As seen in figure 3, each gain unit (items 2) receives a different V_{cci}, thus, the fixed gain amplifier in each unit produces a different gain.

ANALYSIS

Appellants' arguments have not persuaded us that the Examiner erred in finding that the combination of Tsumura and Tanimoto teach each branch including a transfer function circuit implementing a different transfer function as recited in claim 1. Initially, we note that the Examiner's rejection is based on applying the transfer function adjustment item 18 of Tanimoto to the multi-branch amplifier of Tsumura. Answer 5. Thus, Appellants' argument that using Tanimoto's amplifier in each branch of Tsumura's multi-branch amplifier, has an effect on the transfer function, is not persuasive of error as the argument does not address the Examiner's rejection.

Further, inasmuch as Appellants' arguments are directed to the combination not teaching each branch having a different transfer function, Appellants' arguments have not persuaded us of error. The Examiner found, and Appellants have not contested, that Tsumura teaches an amplifier with multiple branches having a gain that makes a contribution to the overall gain. Answer 4. We further note that Tsumura teaches that the variable gain

unit of each branch includes a fixed gain portion and a variable gain portion. Fact 3. The fixed gain portion of each branch is provided with a different V_{cc}. Fact 4. Thus, thus each branch has a different transfer function, as the transfer function of the fixed gain portion is different for each branch. Fact 4. The Examiner has also found, and Appellants have not contested, that Tanimoto teaches a circuit where each branch as a different transfer function. Brief 7. We concur with the Examiner and consider this teaching of Tanimoto to be cumulative of the teaching in Tsumura that the branches have elements with different transfer functions. Thus, we are not persuaded by Appellants' arguments that the Examiner erred in finding that the combined teachings of Tsumura and Tanimoto teach each branch including a transfer function circuit implementing a different transfer function as recited in claim 1. Accordingly, we sustain the Examiner's rejection of claim 1.

Rejections of claims 2 through 6.

Appellants argue that the rejection of claim 2 is in error for the reasons discussed with respect to claim 1. Appellants present a similar argument with respect to the Examiner's rejection of claims 3 through 5, and the Examiner's rejection of claim 6. As discussed above, Appellants have not persuaded us of error in the Examiner's rejection of claim 1. Accordingly, we sustain the Examiner's rejections of claims 2 through 6.

ORDER

The decision of the Examiner, rejecting claims 1 through 6, is affirmed.

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

gvw

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