

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 29

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte CARLO CINI and FABRIZIO STEFANI

Appeal No. 1998-0440
Application No. 08/351,578

ON BRIEF

Before JERRY SMITH, BARRETT, and GROSS, Administrative Patent Judges.

GROSS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 2 through 6, 8, 10, 11, and 13 through 20,¹ which are all of the claims pending in this application.

Appellants' invention relates to an output stage for an integrated power audio amplifier. The device includes a pair of transistors connected in series between a positive and a

¹ An amendment canceling claims 14 and 20 was received with the Brief on May 23, 1997, but does not appear to have been considered by the examiner. Accordingly, we will consider claims 14 and 20 in this appeal.

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negative supply rail. One of the transistors is a PNP bipolar pull-up transistor, and the other is an n-channel power field effect push-down transistor, or, more specifically, a DMOS transistor. Claim 6 is illustrative of the claimed invention, and it reads as follows:

6. An integrated power audio output stage comprising:

a pair of transistors connected, in series with an output node, between a positive and a negative supply rail;

a driver stage connected to drive said transistors in phase opposition;

wherein said pair of transistors comprises a PNP bipolar pull-up transistor and an n-channel power field effect push-down transistor;

wherein said output node is connected to a loudspeaker;

wherein said driver stage is an analog differential amplifier.

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Tanizawa et al. (Tanizawa) 4,716,310 Dec. 29, 1987

Kurosawa² JP 3-082,216 Apr. 08, 1991
(Japanese Kokai Patent Publication)

² Our understanding of this reference is based upon a translation provided by the Translations Branch of the Patent and Trademark Office.

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Kaminaga et al. (Kaminaga)³ JP 5-268,032 Oct. 15, 1993

Claims 2 through 6, 8, 10, 11, and 13 through 20 stand rejected under 35 U.S.C. § 103 as being unpatentable over Tanizawa, Kurosawa, or Kaminaga.

Reference is made to the Examiner's Answer (Paper No. 24, mailed June 24, 1997) for the examiner's complete reasoning in support of the rejections, and to appellants' Brief (Paper No. 23, filed May 23, 1997) and Reply Brief (Paper No. 25, filed July 23, 1997) for appellants' arguments thereagainst.

OPINION

We have carefully considered the claims, the applied prior art references, and the respective positions articulated by appellants and the examiner. As a consequence of our review, we will reverse the obviousness rejections of claims 2 through 6, 8, 10, 11, and 13 through 20.

Claim 6 recites in pertinent part an output node connected to a loudspeaker and an analog differential amplifier as a driver stage. The examiner admits (Answer, page 3) that none of the references teaches either limitation.

³ Our understanding of this reference is based upon a translation provided by the Translations Branch of the Patent and Trademark Office.

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Nonetheless, the examiner asserts (Answer, pages 3-4) that the loudspeaker would have been obvious "since the driver circuit of Tanizawa et al is not limited to driving only certain types of loads, and a loudspeaker load is just one of many different types of loads." Further, in the examiner's response to appellants' arguments, the examiner states (Answer, page 5) that the loudspeaker is "merely an intended use of appellants' output stage rather than an actual feature thereof."

Appellants argue (Brief, pages 6-7) that the loudspeaker is positively recited in the claim, and, therefore, is not merely an intended use. We agree. The body of claim 6 recites a physical connection to a loudspeaker. Further, Tanizawa discloses a logical gate circuit, which has no load connected to the output. Accordingly, we find it difficult to see how it would have been obvious to connect the output of Tanizawa to any load, and particularly to a loudspeaker. The examiner's lack of evidence supporting the obviousness of connecting the output of a logical gate circuit to a loudspeaker further indicates that the examiner has failed to establish a prima facie case of obviousness.

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Regarding the claimed differential amplifier, the examiner contends (Answer, page 4) that

it is well-known that differential amplifiers output complementary signals (i.e., signals that are in phase opposition) and therefore one skilled in the art would recognize that the push-pull pair of transistors of Tanizawa et al, which are disclosed as being driven in phase opposition, could obviously be driven by any type of circuit that outputs signals that are in phase opposition, such as differential output drive stages, which are notoriously well-known in the art. (Underlining ours)

Appellants assert (Brief, page 7) that the examiner has never addressed the limitation that the claimed driver is an analog differential amplifier. We agree. Further, the examiner has failed to provide any evidence of obviousness for modifying Tanizawa to include an analog differential amplifier. The standard under 35 U.S.C. § 103 is not what "could" be done, but rather what would have been obvious to the skilled artisan.

The examiner is required to provide a reason from some teaching, suggestion or implication in the prior art as a whole, why one having ordinary skill in the pertinent art would have been led to modify the prior art to arrive at the claimed invention. Uniroyal, Inc. v. Rudkin-Wiley Corp., 837

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F.2d 1044, 1052, 5 USPQ2d 1434, 1438 (Fed. Cir. 1988), cert. denied, 488 U.S. 825 (1988). These showings by the examiner are an essential part of complying with the burden of presenting a prima facie case of obviousness. Note In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). A mere assertion by the examiner that the pair of transistors of Tanizawa could be driven by a differential amplifier is no substitute for evidence as to why the skilled artisan would have been led to use such a driver in the prior art. Thus, we cannot sustain the rejection of claim 6 and its dependents, claims 2 through 5, over Tanizawa.

Independent claims 8 and 13 do not recite the particular driver stage, but instead specify that the n-channel transistor is an n-channel power DMOS transistor. The examiner admits (Answer, page 3) that Tanizawa fails to disclose a DMOS transistor. Yet, he concludes (Answer, page 4) that the substitution of a DMOS transistor for the n channel MOS transistor of Tanizawa would have been obvious "as a routine design expedient" as the replacement would be "without any unexpected changes in the driver circuit's operation." As pointed out by appellants (Brief, page 8) the

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examiner has not elaborated as to the "design expedient."
Further, he has not provided any evidence of art recognized
equivalence in a device like Tanizawa's. Therefore, we cannot
sustain the rejection of claims 8 and 13 and their dependents,
claims 10, 11, and 14 through 20, over Tanizawa.

Regarding Kurosawa and Kaminaga, the examiner merely
states that "[t]he differences between the claims and these
references would have been obvious ... for the reasons noted
above with regard to the section 103 rejection using Tanizawa
et al." We have carefully reviewed both Kurosawa and
Kaminaga, and we find no disclosure in either reference of a
loudspeaker, an analog differential amplifier (for claims 2
through 6), nor a DMOS transistor (for claims 8, 10, 11, and
13 through 20). Further, the examiner has provided no
evidence of obviousness for modifying either reference. Thus,
the examiner again has failed to establish a prima facie case
of obviousness. Consequently, we cannot sustain the rejection
of claims 2 through 6, 8, 10, 11, and 13 through 20 over
Kurosawa or Kaminaga for substantially the same reasons
explained above regarding Tanizawa.

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CONCLUSION

The decision of the examiner rejecting claims 2 through 6, 8, 10, 11, and 13 through 20 under 35 U.S.C. § 103 is reversed.

REVERSED

JERRY SMITH)	
Administrative Patent Judge)	
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)	
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)	BOARD OF PATENT
LEE E. BARRETT)	APPEALS
Administrative Patent Judge)	AND
)	INTERFERENCES
)	
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ANITA PELLMAN GROSS)	
Administrative Patent Judge)	

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