

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 17

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte FARID DIBACHI,
CHARLES S. RICHARDSON
and ARNOLD S. LIPPA

Appeal No. 1998-0743
Application 08/214,169¹

ON BRIEF

Before URYNOWICZ, KRASS and LALL, Administrative Patent Judges.

URYNOWICZ, Administrative Patent Judge.

Decision on Appeal

This appeal is from the final rejection of claims 1, 2, 5, 7-15 and 18-20, all the claims pending in the application.

The invention pertains to a hearing aid apparatus. Claim 1 is illustrative and reads as follows:

¹ Application for patent filed March 16, 1994.

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A hearing aid apparatus for receiving and transmitting to the human sensory system information contained in an audio frequency signal for enabling human sensing of information contained in said audio frequency signal, comprising:

first transducer means for receiving and converting an audio frequency sound signal into an audio frequency electrical signal;

analog to digital converter means for converting said audio frequency electrical signal to a digital audio frequency electrical signal;

frequency shifting means for shifting the frequency band of said digital audio frequency electrical signal from its original frequency band to a different selected frequency band to form a digital frequency shifted electrical signal, including modulation means for modulating said digital audio frequency electrical signal onto a carrier signal to form said digital frequency shifted electrical signal, and means for forming a digital single sideband amplitude modulated frequency shifted signal from said digital frequency shifted electrical signal;

digital to analog converter means for converting said digital single sideband amplitude modulated frequency shifted electrical signal to an analog frequency shifted electrical signal;

second transducer means for converting said analog frequency shifted electrical signal into a sensory signal for application to a portion of the human body; and

applicator means for applying said sensory signal to the human sensory system through physical interaction with the human body.

The references relied upon by the examiner as evidence of obviousness are:

Kimball et al. (Kimball)	4,220,160	Sep. 02, 1980
Engebretson et al. (Engebretson)	4,548,082	Oct. 22, 1985

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Lenhardt et al. (Lenhardt) 4,982,434 Jan. 01,
1991

Claims 1, 2, 5 and 18-20/1 and 5 are rejected under
35 U.S.C. § 103 as being unpatentable over Lenhardt in view of
Kimball.

Claims 7, 8, 10-12 and 18-20/7 are rejected under 35
U.S.C.

§ 103 as unpatentable over Lenhardt in view Engebretson.

Claims 9, 13-15 and 18-20/13 are rejected under 35 U.S.C.
§ 103 as unpatentable over Lenhardt in view of Engebretson and
Kimball.

The respective positions of the examiner and the
appellants with regard to the propriety of these rejections
are set forth in the final rejection (Paper No. 11), the
examiner's answer and supplemental answer (Paper Nos. 14 and
16) and the appellants' brief and reply brief (Paper Nos. 13
and 15).

Opinion

After consideration of the positions and arguments
presented by both the examiner and the appellants, we have
concluded that the rejections should not be sustained.

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Regarding independent claims 1, 5 and 13, we do not agree with the examiner's position at page 14 of the answer that,

Since Kimball teaches the single sideband modulated signal (the sum of the modulated carrier 250Hz) which is applied to a transducer (115) to produce a vibratory signal; it therefore would have been obvious to one skilled in the art to provide means for forming a single sideband amplitude modulate frequency signal, as taught by Kimball, in the Lenhard system for transmitting the sound signals to the human body in a desired range.

As noted by appellants in their supplemental brief, there is no reason why one of ordinary skill in the art would have been motivated to transmit signals in a desired range. Lenhardt does not pertain to a communication system wherein modulated carrier signals are transmitted from a transmitter to a receiver over the airwaves or through wires. Lenhardt discloses a hearing aid wherein the vibrator which applies vibrations to the skull for bone conduction must provide such vibrations at a frequency in the supersonic range. There is no need to reduce bandwidth in Lenhardt's apparatus since it is not a communication system, and thus does not operated under communication channel bandwidth limitations because it

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does not compete with other signals for space in the available electromagnetic frequency spectrum. Accordingly, one of ordinary skill in the art would not have been motivated to modify the Lenhardt apparatus in view of Kimball as proposed by the examiner since to do so would solve no problem and serve no purpose. The mere fact that the prior art may be modified in the manner suggested by the examiner does not make the modification obvious unless the prior art suggested the desirability of the modification. In re Fritch, 972 F.2d 1260, 1266, 23 USPQ2d 1780, 1783 (Fed. Cir. 1992).

With respect to independent claim 7, the only other independent claim, we do not agree with the examiner's position at pages 4-5 of the answer that,

Since Lenhardt teaches the frequency transposition [sic : transposition] which shifts the frequency from a normal audiometric range to the supersonic range; it therefore would have been obvious to one skilled in the art to provide the digital interpolator means, as taught by Engebretson et al., in the digital Lenhardt system to increase the sampling rate of the frequency digital signal to the frequency upshifting electrical carrier signals. This would provide more accuracy for the sampling signals.

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In Engebretson, the sampling frequency data of a signal is first decimated to reduce the amount of data supplied to the processor, and after processing the signal, it is interpolated to restore the frequency back to the original value. Thus, Engebretson does not increase the sampling frequency of a digital audio frequency electrical signal as defined in claim 7 but rather reduces the frequency and subsequently restores it back to its original value. Accordingly, even if there existed some suggestion or motivation to combine the teachings of Lenhardt and Engebretson, this prior art would not meet claim 7.

Whereas we will not sustain the rejections of any of the independent claims over the prior art, we will not sustain the rejections of the dependent claims.

REVERSED

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	STANLEY M. URYNOWICZ, JR.)	
	Administrative Patent Judge)	
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