

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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. 18

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte DAVID L. GRAUMANN, THOMAS J. BARNES  
and JOHN J. BIELASZEWSKI

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Appeal No. 2004-0858  
Application No. 09/747,709

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ON BRIEF

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Before HAIRSTON, KRASS and DIXON, Administrative Patent Judges.  
KRASS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the final rejection of claims 1-10 and 12-14, 16, 17 and 19-24.

The invention is directed to characterizing the latency of an audio channel of a computer. In particular, a first and second signal sample stream are created in an audio channel, the presence of these sample streams is detected at a point in the

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audio channel, the time between the detections of the sample streams is measured, and one of the signal sample streams is delayed based on the time measured between the detections.

Representative independent claim 1 is reproduced as follows:

1. A method for actively characterizing the latency of an audio channel of a computer, comprising:

creating at least two signal sample streams for a waveform in the audio channel;

detecting the presence of the first signal sample stream for said waveform and the second signal sample stream for said waveform at a point in said audio channel;

measuring the time between the detections of the signal sample streams; and

delaying at least one of the signal sample streams based, at least in part, on the time measured between the detections.

The examiner relies on the following references:

Park et al. (Park)	5,410,595	Apr. 25, 1995
Vahatalo et al. (Vahatalo)	5,737,410	Apr. 7, 1998
	(102(e) date:	Sep. 13, 1996)
Hollier	5,890,104	Mar. 30, 1999
	(102(e) date:	Dec. 14, 1995)

Claims 1-10, 12-14, 16, 17 and 19-24 stand rejected under 35 U.S.C. § 103. As evidence of obviousness, the examiner offers Vahatalo with regard to independent claims 1, 12, 19 and 22, adding Park with regard to claims 2-4, 7-10, 16 and 17. With

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regard to claims 13, 14, 20, 21, 23 and 24, the examiner offers Vahatalo and Hollier.

Reference is made to the briefs and answer for the respective positions of appellants and the examiner.

OPINION

With regard to independent claims 1, 12, 19 and 22, the examiner points to Figure 5B, the abstract and column 4, line 63-column 8, line 50, of Vahatalo, and contends that RIN and SIN are two waveforms in an audio channel which are used to calculate the delay from the outgoing echo location to the returned echo, wherein the delay is set in an adjustable delay element 43. The examiner specifically identifies sampling means 45 and 46, calculation means 44, adjustable delay means 43 and adaptive filter 40.

It is the examiner's contention that while Vahatalo does not disclose that the location of the echo is calculated for an audio channel in a computer, the skilled artisan would have known that the method of determining the echo location would have been the same in either acoustic environments or hybrid line environments and that that "method would require identifying the outgoing signal in part of the incoming signal, regardless if the signals were propagated through the air or transmission line" (Paper No.

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9-page 3). The examiner then concludes that it would have been obvious "to apply the technique used for echo location in transmission lines in systems having acoustic echo, such as computer/telephone speakerphones" (Paper No. 9-page 3). The examiner applies this reasoning to claims 1 and 12. As to claims 19 and 22, the examiner alleges that while Vahatalo does not disclose a machine readable storage medium for executing the method, it would have been obvious "to perform signal processing methods through the use of microcomputers where the method steps are instructions on machine readable storage media. The use of microcomputers adds efficiency and speed to the process" (Paper No. 9-page 3).

Appellants' position is that Vahatalo does not disclose two or more signal streams created in an audio channel because RIN and SIN are "ports," not signals, as alleged by the examiner. We think it is clear that the examiner meant the signals on those ports, with RIN indicating the speech signal from speaker A at port RIN and SIN indicating the signal received from speaker B at port SIN. (See column 4, line 66 to column 5, line 4).

Appellants argue further that Vahatalo's signals are "electrical" signals, not audio signals and, so, the signals would not be signals created in the audio channel, as claimed.

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We are unpersuaded by appellants' argument. The claims do not recite an audio signal. They recite the creation of two signal streams in an audio channel. Thus, it does not matter whether the signals are "audio" or "electrical," though the difference is unclear where a sound, or a speech, is converted to an electrical signal and the electrical signal then represents "audio," i.e., may be considered an audio signal. In any event, it is clear that Vahatalo is also dealing with an audio channel, since it describes echos in normal "speech" and that the acoustic echo is between the earphone and microphone of a telephone set (see, for example, column 1, lines 20-32). As the examiner explains, at page 3 of the answer, it is clear that the signals at RIN and SIN carry audio information, i.e., speech, and are therefore, "audio signals." The examiner further points to column 5, lines 2-5, of Vahatalo, to show that signals at RIN and SIN are "speech" signals and, therefore, audio.

Appellants argue, in the reply brief, that the examiner's characterization of an "audio channel" in Vahatalo is unreasonable because an electrical connection that electrically couples two speakers constitutes an "electrical channel" and not an "audio channel," as claimed. Appellants urge that the definition of "audio" is sound and the definition of "channel" is

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a means of passage. Using appellants' own definitions, an "audio channel" would be merely a means for passing sound. Vahatalo is concerned with echo cancellation in a telephone network. It is clear that the purpose of a telephone network is to pass sound from one telephone receiver to another telephone receiver, e.g., see Figure 1 of Vahatalo. In passing sound from one receiver to another, it is clear that Vahatalo teaches an "audio channel," as broadly claimed. Accordingly, we are not persuaded by appellants' argument in this regard since it appears to be reasonable to interpret the processing occurring in Vahatalo as occurring in an "audio channel."

Appellants further argue that Vahatalo does not disclose the claimed "delaying at least one of the signal sample streams based, at least in part, on the time measured between the detections." It is the examiner's position that this is taught by Vahatalo in that calculator 44 is responsible for measuring the time between detections of the two signal streams.

We agree with appellants. It is clear to us, from column 3, lines 53-56, of Vahatalo, that the calculator 44 of Vahatalo calculates the "correlation" between the stored samples of the outgoing and incoming signals. We find no indication, anywhere in Vahatalo, and the examiner has pointed to nothing, that

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evidences a delay between sampled signals based, at least in part, on the time measured between detections of the signal sample streams. Since the examiner has failed to show the calculator 44 calculating, or measuring, "the time between the detections of the signal samples streams" and then using that calculated, or measured, result to delay at least one of the signal sample streams, the examiner has not established a prima facie case of obviousness with regard to the instant claimed subject matter and we will not sustain the rejection of claims 1, 12 and 22 under 35 U.S.C. § 103.

We note that independent claim 19 does not require "delaying" one of the waveforms or signal streams "based, at least in part, on the time measured between the detections" of the first and second waveforms or signal streams. It does, however, require "measuring the time between the detections of the signal sample streams." While Vahatalo does disclose the calculator 44 calculating a "correlation" between the stored samples, there is no indication in Vahatalo, and the examiner has not convincingly pointed to anything indicating, that such a "correlation" amounts to a measurement of time between detections of the two signal sample streams, as claimed. Accordingly, we will not sustain the rejection of claim 19 under 35 U.S.C. § 103.

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We further note that our decision herein with regard to independent claim 19 may appear to be somewhat inconsistent with our decision of July 23, 2004, in Application Serial No. 08/882,381, Appeal No. 2003-1584, with regard to claims having similar limitations. However, that perceived inconsistency stems not from an inconsistency of thinking on our part but, rather from a failure on the part of appellants to specifically argue the "measuring the time..." limitation in Appeal No. 2003-1584.

Since we have not sustained the rejection of the independent claims under 35 U.S.C. § 103, we also will not sustain the rejection of claims 2-4, 7-10, 13, 14, 16, 17, 20, 21, 23 and 24 under 35 U.S.C. § 103 since neither Park nor Hollier provides for the deficiencies of Vahatalo.

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The examiner's decision rejecting claims 1-10, 12-14, 16, 17  
and 19-24 under 35 U.S.C. § 103 is reversed.

REVERSED

KENNETH W. HAIRSTON	)	
Administrative Patent Judge	)	
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	)	
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	)	
ERROL A. KRASS	)	BOARD OF PATENT
Administrative Patent Judge	)	APPEALS AND
	)	INTERFERENCES
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	)	
	)	
JOSEPH L. DIXON	)	
Administrative Patent Judge	)	

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