

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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.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. 25

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ROBERT C. WANG

Appeal No. 96-0273
Application No. 08/246,387¹

ON BRIEF

Before THOMAS, HAIRSTON and BARRETT, Administrative Patent Judges.

HAIRSTON, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1 through 10. In an Amendment After Final (paper number 20),

¹ Application for patent filed May 20, 1994. According to the appellant, the application is a continuation-in-part of Application No. 08/165,568, filed December 13, 1993, which is a continuation of Application No. 07/947,695, filed September 21, 1992.

claim 7 was amended. Claims 11 and 12 have been found to be allowable over the prior art of record.

The disclosed invention relates to a method and system for detecting the presence of a Supervisory Audio Tone (SAT) superimposed on a voice/data signal.

Claims 1 and 9 are illustrative of the claimed invention, and they read as follows:

1. A method for detecting the presence of a Supervisory Audio Tone (SAT) when the SAT is superimposed on a Frequency-Modulated (FM) voice/data signal to yield a combined signal which is periodically sampled, comprising the steps of:

(a) receiving successive samples of the combined voice/data and SAT signal such that noise associated with said combined signal is suppressed and the combined signal is captured when the signal power of the combined signal exceeds the power of the noise and the combined signal is suppressed and the noise is captured when the power of the noise exceeds the power of the combined signal;

(b) deleting the voice/data signal from a sample containing the combined voice/data and SAT signal so that only the SAT remains:

(c) determining the signal power of the SAT;

(d) determining the noise power of the SAT, the SAT noise power moving in an opposite direction from the SAT signal power; and

(e) comparing the signal power to the noise power of the SAT to determine if the signal power of the SAT exceeds the noise power of the SAT as occurs when the SAT is present.

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to particularly point out and distinctly claim the subject matter which appellant regards as the invention.

Claims 1 through 6, 9 and 10 stand rejected under 35 U.S.C. § 103 as being unpatentable over Wang in view of Taub.

Reference is made to the brief and the answer for the respective positions of the appellant and the examiner.

OPINION

We have carefully considered the entire record before us, and we will reverse all of the rejections.

The rejections under the first and second paragraphs of 35 U.S.C. § 112 stem from appellant's use of the phrase "the SAT noise power moving in an opposite direction from the SAT signal power" (claims 1 and 7). According to the examiner (Answer, pages 3 and 7), "[t]he method does not make or cause the SAT noise power to move in an opposite direction from the SAT signal power," because the movement of the signals in the opposite direction "is a natural phenomenon and which is not done by the method."

In response to the lack of enablement rejection, appellant argues (Brief, pages 3 and 4) that:

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Appellant's specification contains a complete and full written description of appellant's invention and the method of making and using it so as to comply with 35 U.S.C. 112. In particular, appellant's specification contains a description of the manner in which the SAT noise power and SAT signal power move in opposite directions. As discussed at page 2 of appellant's specification, FM radio receivers (such as the type used in cellular and wireless communications) generally exhibit a phenomenon known as the "FM capture effect". This phenomenon causes the radio receiver to suppress the noise when the power of the signal is greater than the noise. Conversely, when the noise is greater than the signal, the noise predominates, causing the receiver to suppress the signal. This phenomenon is depicted graphically in FIG. 3 and is further discussed at pages 5 and 6 of appellant's specification.

Appellant's response (Brief, page 4) to the indefiniteness rejection is that:

Appellant's claims comply with 35 U.S.C. 112, second paragraph, because the claims clearly and distinctly point out what appellant regards as his invention. In particular, the claims are not confusing regarding movement of the SAT noise power and SAT signal power despite the examiner's contentions to the contrary. As discussed above with respect to the 35 U.S.C. 112, first paragraph, rejection of appellant's claims, the movement of the SAT noise power and SAT signal power in opposite directions stems from the FM capture effect associated with FM receivers. This effect is inherent with FM receivers and is not directly attributable to appellant's method, let alone appellant's step of determining the SAT noise and signal power. Rather, appellant's method takes advantage of this

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phenomenon to provide a rapid and reliable method of detecting the presence of the SAT. Appellant has chosen to recite the opposite movement of the SAT noise power and SAT signal power in the step of *determining the SAT noise power* to assure proper antecedent basis. Obviously, appellant could not have recited that the SAT noise power and SAT signal power move in opposite directions without having recited the step of determining the SAT noise power in the first place. As presently written, claims 1 and 7, and those that depend therefrom, clearly and concisely point out what appellant regards as his invention.

Although the "FM capture phenomenon" (specification, page 2) causes the SAT signal power and the SAT signal noise power to move in opposite directions, appellant can still properly claim the inherent by-product of the "FM capture phenomenon" as part of his overall method of detecting the presence of the SAT. Thus, we agree with appellant that the claims on appeal fully comply with the first and second paragraphs of 35 U.S.C. § 112. The rejections of claims 1 through 8 under the first and second paragraphs of 35 U.S.C. § 112 are reversed.

In formulating the obviousness rejection, the examiner recognized (Answer, page 5) that Wang does not compare the SAT signal power to the SAT signal noise power. Wang compares the SAT signal power to a threshold value (column 5, line 51; and

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column 8, lines 35, 36, 43, 65 and 67). The examiner is of the opinion (Answer, page 5) that:

[I]t would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the well known use of determining the noise power of a signal and comparing the signal power to the noise power, as evidenced [sic, evidenced] by **Taub et al**, in the method for detecting the presence of a SAT signal for the purpose of determining the minimal transmission power and reception capabilities of the SAT signal in order to detect a SAT signal superimposed on a voice/data signal.

We agree with the examiner (Answer, page 10) that Taub provides evidence (page 610) that it is well known in the art to compare a signal power to a noise power to derive a signal-to-noise ratio. On the other hand, we do not agree with the examiner that it would have been obvious to one of ordinary skill in the art to modify Wang with the signal-to-noise ratio teachings of Taub because Wang already compares the SAT signal power to a threshold value. The idea to collect SAT signal noise power, and to then use it in a comparison step of a method for detecting the presence of the SAT signal comes from appellant's disclosed and claimed invention, and not from the applied references. The obviousness rejection of claims 1 through 6, 9 and 10 is reversed because a prima facie case of

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obviousness can not be established using impermissible
hindsight.

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DECISION

The decision of the examiner rejecting claims 1 through 8 under the first and second paragraphs of 35 U.S.C. § 112 is reversed, and the decision of the examiner rejecting claims 1 through 6, 9 and 10 under 35 U.S.C. § 103 is reversed.

REVERSED

JAMES D. THOMAS)	
Administrative Patent Judge)	
)	
)	
)	
)	BOARD OF PATENT
KENNETH W. HAIRSTON)	APPEALS
Administrative Patent Judge)	AND
)	INTERFERENCES
)	
)	
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LEE E. BARRETT)	
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Appeal No. 96-0273
Serial No. 08/246,387

Judge HAIRSTON

Judge BARRETT

Judge THOMAS

Received: 20 Aug 98

Typed: 21 Aug 98

DECISION: REVERSED

Send Reference(s): Yes No
or Translation(s)

Panel Change: Yes No

3-Person Conf. Yes No

Remanded: Yes No

Brief or Heard

Group Art Unit: 2608

Index Sheet-2901 Rejection(s): _____

Acts 2: _____

Palm: _____

Mailed: Updated Monthly Disk: _____

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