

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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.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. 11

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JAY M. WARDLE

Appeal No. 1996-2986
Application 08/348,625¹

ON BRIEF

Before HAIRSTON, FLEMING, and RUGGIERO, Administrative Patent Judges.

RUGGIERO, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the final rejection of claims 1-11 and 21-29. Claims 12-20 have been canceled.

The disclosed invention relates to a method and apparatus

¹ Application for patent filed December 2, 1994. According to the appellant, the application is a division of Application 08/013,882, February 5, 1993, now U.S. Patent No. 5,399,976, issued March 21, 1995.

for obtaining a group delay measurement of an electrical network. More particularly, Appellant indicates at pages 3 and 4 of the specification that an estimate of the group delay is determined by performing a linear regression analysis on samples of a phase response measured at frequencies within an aperture centered on the group delay frequency. A trace of the group delay of the network is determined by repeating the process across a range of frequencies.

Claim 1 is illustrative of the invention and reads as follows:

1. In an electronic measurement instrument, a method for estimating a trace of second measurements related to the derivative of a trace of first measurements of an electrical property of a network, the method comprising:

obtaining a plurality of uniformly spaced samples of a first measurement to form the first trace; and

performing a least mean squares fit to samples in the first trace within each of a plurality of apertures to determine a plurality of estimates of a second measurement for forming the second trace.

The Examiner relies on the following prior art:

Rietsch 1977	4,065,665	Dec. 27,
Potter 1987	4,658,367	Apr. 14,

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Claims 1, 2, 5, 25, 26, and 29 stand finally rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter. Claims 1-11 and 21-29 stand finally rejected under 35

U.S.C. § 103 as being unpatentable over either one of Rietsch or Potter in view of "well known practices in the art."²

Rather than reiterate the arguments of Appellant and the Examiner, reference is made to the Brief and Answer for the respective details thereof.

OPINION

We have carefully considered the subject matter on appeal, the rejections advanced by the Examiner and the reasons relied upon by the Examiner as support for the rejections. We have, likewise, reviewed and taken into

²The Examiner's statement of the grounds of rejection refers to the application of the teachings of Rietsch and Potter to measurements of transfer functions in accordance with "well-known practices." Particular mention is made to a previously known interpolation technique known as "the splines interpolation."

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consideration, in reaching our decision, Appellant's arguments set forth in the Brief along with the Examiner's rationale in support of the rejections and arguments in rebuttal set forth in the Examiner's Answer.

It is our view, after consideration of the record before us, that claims 1, 2, 5, 25, 26, and 29 are directed to statutory subject matter within the meaning of 35 U.S.C. § 101. We are also of the view that the collective evidence relied upon and the

level of skill in the particular art would not have suggested to one of ordinary skill in the art the obviousness of the invention as set forth in claims 1-11 and 21-29. Accordingly, we reverse.

We consider first the rejection of claims 1, 2, 5, 25, 26, and 29 under 35 U.S.C. § 101 as being directed to non-statutory subject matter in the form of a mathematical algorithm. With respect to the mathematical algorithm exception, the Federal Circuit in State Street Bank & Trust

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Co. v. Signature Financial Group, Inc., 149 F.3d 1368, 1373, 47 USPQ2d 1596, 1600 (Fed. Cir. 1998) first identified the judicially created three categories that are not patentable (laws of nature, natural phenomena and abstract ideas) citing Diamond v. Diehr, 450 U.S. 175, 209 USPO 1 (1981). The opinion went on to note "the mathematical algorithm is unpatentable only to the extent that it represents an abstract idea" and is thus not "useful." State Street Bank 149 F.3d at 1373 & n.4, 47 USPQ2d at 1600-01 & n.4. Later in its opinion, the court returned to this issue: "[T]he mere fact that a claimed invention involves inputting numbers, calculating numbers, outputting numbers, and storing numbers, in and of itself, would not render it nonstatutory subject matter, unless, of course, its operation does not produce a 'useful, concrete and tangible result.'" State Street Bank 149 F.3d at 1374, 47 USPQ2d at 1602. In this case, the court stated that "the transformation of data, representing discrete dollar amounts, by a machine through a series of mathematical calculations into a final share price, constitutes a practical application of a mathematical algorithm . . . because it

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produces a useful, concrete and tangible result'"

State Street Bank 149 F.3d at 1373, 47 USPQ2d at 1601.

Significantly, the court concluded its analysis of the mathematical algorithm issue as follows: "The question of whether a claim encompasses statutory subject matter should not focus on which of the four categories of subject matter a claim is directed to . . . but rather on the essential characteristics of the subject matter, in particular, its practical utility."
State Street Bank 149 F.3d at 1375, 47 USPQ2d at 1602.

Appellant's claim 1 recites an electronic measurement instrument in which a method of relating measurement traces of an electrical property of a network is performed. We are of the view that the claim language recites a practical application of applying a least squares fit to obtained measurement samples to determine an electrical characteristic of a network such as group delay. Since claims 1, 2, 5, 25, 26, and 29 recite a practical application for the reason just

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discussed, the 35 U.S.C. § 101 rejection of these claims is not sustained.

We now consider the 35 U.S.C. § 103 rejection of claims 1-11 and 21-29 as being unpatentable over either one of Rietsch or Potter in view of "well known practices in the art."

In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the Examiner to establish a factual basis to support the legal conclusion of obviousness. See In re Fine, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so doing, the Examiner is expected to make the factual determinations set forth in Graham v. John Deere Co., 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), and to provide a reason why one having ordinary skill in the pertinent art would have been led to modify the prior art or to combine prior art references to arrive

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at the claimed invention. Such reason must stem from some teaching, suggestion or implication in the prior art as a whole or knowledge generally available to one having ordinary skill in the art. Uniroyal Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1052, 5 USPQ2d 1434, 1439 (Fed. Cir.), cert. denied, 488 U.S. 825 (1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 293, 227 USPQ 657, 664 (Fed. Cir. 1985), cert. denied, 475 U.S. 1017 (1986); ACS Hospital Systems, Inc. v. Montefiore Hospital, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). These showings by the Examiner are an essential part

of complying with the burden of presenting a prima facie case of

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obviousness. Note In re Oetiker, 977 F.2d 1443, 1445, 24
USPQ2d
1443, 1444 (Fed. Cir. 1992).

As indicated by the cases just cited, the Examiner has at least two responsibilities in setting forth a rejection under 35 U.S.C. § 103. First, the Examiner must identify all the differences between the claimed invention and the teachings of the prior art. Second, the Examiner must explain why the identified differences would have been the result of an obvious modification of the prior art. In our view, the Examiner has not properly addressed his first responsibility so that it is impossible that he has successfully fulfilled his second responsibility.

With respect to the obviousness rejection of independent claims 1, 6, and 25 based on Rietsch and "known practices in the art", the Examiner has never attempted to show how each of the claimed limitations is suggested by the prior art. Instead, in our view, the Examiner has attempted to combine the general phase difference determination features of Rietsch with unspecified "well known practices" (Answer, page 3) in

some vague manner without specifically describing such features or how and why they are to be combined. This does not persuade us that skilled artisans, using their own knowledge of the art, would have been put in possession of the claimed subject matter. For example, as pointed out by Appellants at pages 16 and 17 of the Brief, in contrast to the claimed trace development limitations, the system of Rietsch develops single values of start time difference and overall phase shift between two signals developed from an entire phase relationship plot. The Examiner has never provided any indication of which general knowledge teaching would be combined with this teaching of Rietsch, nor any rationale for making such combination, that would arrive at the claimed invention.

We note that, in prior Office actions (paper numbers 3 and 5) referenced in the Answer, the Examiner briefly discusses the "splines" interpolation technique. To the extent that such a mathematical interpolation technique has any relevance to the Examiner's proposed modification of Rietsch, we agree with Appellant's assertions expressed at

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pages 17 and 18 of the Answer. In our opinion, the use of a more detailed approximation technique (such as "splines") on the phase plot of Rietsch would perhaps lead to a segmented approximation of such plot but would not lead in and of itself to a development of a derivative trace as claimed.

Since, for all of the reasons discussed above, we are of the view that the Examiner has not established a prima facie of obviousness based on Rietsch. Accordingly, we do not sustain this 35 U.S.C. § 103 rejection of independent claims 1, 6, and 25, nor of claims 2-5, 7-11, 21-24 and 26-29 dependent thereon.

The Examiner has made a separate obviousness rejection of claims 1-11 and 21-29 based on Potter and "known practices in the art." It is our view that this rejection suffers from the same deficiencies as the one based on Rietsch as discussed previously. Potter is directed to the measurement of a system transfer function waveform, the fitting of an equation to this measured waveform to determine an estimated transfer function, and the subsequent development of an indication of the poles and zeros of the system. As Appellant points out at pages 13-

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16 of the Brief, this is contrasted with the claim limitations which require the development of a derivative trace of a first measurement. Faced with this distinction, the Examiner seeks to modify Potter by looking to some unspecified "general knowledge" in the art. As with the rejection based on Rietsch, the Examiner has not identified what aspect of this "general knowledge" is being relied on, let alone provided any rationale for making the modification. 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 Fritsch, 972 F.2d 1260, 1266, 23 USPQ2d 1780, 1781-82 (Fed. Cir. 1992). We are left to speculate why the skilled artisan would modify the pole and zero analyzer of Potter to provide for development of a derivative trace as claimed. The only reason we can discern is improper hindsight reconstruction of appellant's claimed invention. Accordingly, since the Examiner has not established a prima facie case of obviousness, the 35 U.S.C. § 103 rejection of claims 1-11 and 21-29 based on Potter cannot be sustained.

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In summary, we have not sustained any of the Examiner's rejections of the claims on appeal. Therefore, the Examiner's decision rejecting claims 1-11 and 21-29 is reversed.

REVERSED

KENNETH W. HAIRSTON)
Administrative Patent Judge)
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)
) BOARD OF PATENT
MICHAEL R. FLEMING)
Administrative Patent Judge) APPEALS AND
)
) INTERFERENCES
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JOSEPH F. RUGGIERO)
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