

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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.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. 24

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JOSEPH L. VERANTH

Appeal No. 96-0418
Application 08/051,321¹

HEARD: May 7, 1999

Before HAIRSTON, BARRETT and LALL, Administrative Patent Judges.

LALL, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection² of claims 1, 9

¹ Application for patent filed February 18, 1993. According to the appellant, the application is a continuation of Application 07/540,108, filed June 19, 1990, now abandoned.

² An additional reference was added under the new ground of rejection of all these claims in the Examiner's answer.

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through 11, 15, 16, 19 and 21. Claim 13 has been cancelled and other claims have been indicated as allowable.

The disclosed invention is concerned with the optimum tuning of a high Q antenna having a length and width each significantly less than a quarter wavelength within a predetermined frequency range. A controllable reactive element is coupled to the antenna and is controlled by a tuning circuit, which in turn is responsive to the difference between the desired level of the signal and the signal transduced by the antenna. The antenna and the reactive element typically comprise a circuit having a Q greater than 100 [specification, page 2, lines 5 to 7].

Representative claim 1 is reproduced as follows:

1. A tunable antenna system for operation over a predetermined frequency range comprising,

a high Q antenna having a length and width each significantly and much less than a quarter wavelength within said predetermined frequency range,

a controllable reactive element coupled to said antenna having a variable reactance for tuning said antenna in a high Q resonant circuit to the frequency of a desired signal in said frequency range, and

an antenna-tuning circuit having a detector for providing

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a level signal representative of a signal transduced by said antenna and said antenna-tuning circuit being responsive to said level signal for continuously providing an antenna-tuning signal to said controllable reactive element, to control the reactance of the reactive element so that the antenna remains tuned to the frequency of said desired signal.

The references relied on by the Examiner are:

Andros et al.(Andros)	4,851,830	Jul. 25, 1989
Rosen et al.(Rosen)	5,001,355	Mar. 19, 1991
		(filed Sept. 25, 1989)
Gaskill et al.(Gaskill)	5,136,719	Aug. 4, 1992
		(filed Dec. 5, 1988)

Shrader, Robert, Electronic Communication, 5th Edition, 1985, pages 126 to 127.

Claims 1, 9 through 11, 15, 16, 19 and 21 stand rejected under 35 U.S.C. § 103. As evidence of obviousness, the Examiner offers Gaskill, Andros, Rosen and Shrader [answer, page 2 and 3].

Reference is made to Appellant's briefs³ and the

³ A reply brief was filed on July 17,1995 and entered in record. Also, an amendment was filed on July 17,1995 in response to the new ground of rejection. The claims on appeal are as they were amended.

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Examiner's answer for their respective positions.

OPINION

We have carefully considered the entire record before us, and we will reverse the obviousness rejection of claims 1, 9 through 11, 15, 16, 19 and 21.

The Examiner has failed to set forth a prima facie case of obviousness. It is the burden of the Examiner to establish why one having ordinary skill in the art would have been led to the claimed invention by the express teachings or suggestions found in the art, or by implications contained in such teachings

or suggestions. In re Sernaker, 702 F.2d 989, 995, 217 USPQ 1, 6 (Fed. Cir. 1983). "Additionally, when determining obviousness, the claimed invention should be considered as a whole; there is no legally recognizable 'heart' of the invention." Para-Ordnance Mfg. V. SGS Importer Int'l, Inc., 73 F.3d 1085, 1087, 37 USPQ2d 1237, 1239 (Fed. Cir. 1995), cert. denied, 117 S.Ct. 80 (1996) citing W. L. Gore & Assocs., Inc. V. Garlock, Inc., 721 F.2d 1540, 1548, 220 USPQ 303, 309 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984).

Appellant argues that there is nothing in Gaskill, Andros and Rosen, taken singly or in combination, which would have led one of ordinary skill in the art to the invention of claim 1 [brief, pages 4 to 9]. Appellant point out that the Examiner recognizes that Gaskill and Andros do not teach the high Q antenna system and applies a third reference in the new ground of rejection in the answer. Appellant further argues that Rosen, too, "fails to disclose ... a high Q ... range." [reply brief, page 2, lines 13 to 17].

We note that claim 1 recites, among others, the feature of "a high Q antenna having a length and width each significantly and much less than a quarter wavelength within said predetermined frequency range," [lines 3 to 5], and "a controllable reactive element coupled to said antenna having a variable reactance for tuning said antenna in a high Q resonant circuit to the frequency of a desired signal in said frequency range," [lines 6 to 9]. The Examiner has used a combination of Gaskill, Andros and Rosen to meet these features [answer, pages 4 to 5]. However, the Examiner has not pointed to any specific language, and we have not so found where such capability is disclosed in the applied prior art.

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Gaskill and Andros both are concerned with a paging system. Each does show a controllable reactive element, element 14 in each, and a feedback antenna tuning controller, element 16 in Gaskill and 44 in Andros, but neither reference discusses the problems associated with a high Q antenna tuning system. The term "high Q antenna" is defined in the specification as an antenna having a Q greater than 100 [specification, page 2, lines 5 to 7]. We further find that Rosen relates to a photon energy activated radio frequency signal switch and describes the use of such a switch to an "antenna 90, which may be a short high-Q antenna." [column 4, lines 36 to 37]. We find that Rosen also does not teach or suggest the feature of either "a high Q ... range," [claim 1, lines 3 to 5], or the use of "a controllable reactive element ... in a high Q resonant circuit ... range," [claim 1, lines 6 to 9].

The Federal Circuit states that "[t]he 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 n.14, 23 USPQ2d 1780, 1783-84

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n.14(Fed. Cir. 1992), citing In re Gordon, 733 F.2d 900, 902, 221 USPQ 1125, 1127(Fed. Cir. 1984). "Obviousness may not be established using hindsight or in view of the teachings or suggestions of the inventor." Para-Ordnance Mfg. V. SGS Importers Int'l, Inc., 73 F.3d at 1087, 37 USPQ2d at 1239, citing W. L. Gore, 721 F.2d 1540, 1553, 220 USPQ 302,312-13.

We, therefore, reverse the rejection of claim 1 under 35 U.S.C. § 103 over Gaskill, Andros and Rosen. Likewise, we reverse the rejection of claim 16, which is the method claim corresponding to claim 1, under 35 U.S.C. § 103 over Gaskill, Andros and Rosen. Since claims 9, 10, 15, 19 and 21 depend on claims 1 and 16 and are rejected under the same ground, their rejection is also reversed.

With respect to claim 11, it stands rejected under 35 U.S.C. § 103 over Gaskill, Andros and Rosen, and further in view of Shrader [answer, pages 6 to 7].

We first note that claim 11 depends on claim 1 and contains at least the features of claim 1 discussed above. We find that Shrader discusses the general concept of "Q" of an

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antenna, but Shrader does not cure the deficiency of the combination of Gaskill, Andros and Rosen. Therefore, we reverse this rejection of claim 11 under 35 U.S.C. § 103.

DECISION

The decision of the Examiner rejecting claims 1, 9 through 11, 15, 16, 19 and 21 under 35 U.S.C. § 103 is reversed.

REVERSED

KENNETH W. HAIRSTON)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
LEE E. BARRETT)	
Administrative Patent Judge)	APPEALS AND
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)	INTERFERENCES
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PARSHOTAM S. LALL)	
Administrative Patent Judge)	

PSL/pgg
Charles Hieken

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Fish & Richardson
225 Franklin Street
Boston, MA 02110-2804