UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte WALLACE R. GARDNER, VIMAL V. SHAH,
PAUL F. RODNEY, and DONALD G. KYLE

Appeal 2007-3428
Application 10/364,169
Technology Center 3600

Decided: March 24, 2008

Before WILLIAM F. PATE, III, MURRIEL E. CRAWFORD, and JENNIFER D. BAHR, *Administrative Patent Judges*.

CRAWFORD, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134 (2002) from a final rejection of claims 1 to 9 and 29 to 36. Claims 10 to 28 have been cancelled. We have jurisdiction under 35 U.S.C. § 6(b) (2002).

Appellants invented a downhole telemetry system wherein a downhole modem communicates wirelessly with a surface modem using discrete multi-tone modulation (DMT) (Specification 1).

Claim 1 under appeal reads as follows:

1. A downhole telemetry system, comprising:

a surface modem coupled to an antenna; and

a downhole modem coupled to an antenna;

wherein said downhole modem communicates with said surface modem using discrete multi-tone modulation to wirelessly transmit telemetry data over a first set of frequency subchannels allocated for uplink communications.

The Examiner rejected claims 1 to 9 and 29 to 36 under 35 U.S.C. § 103(a) as being unpatentable over Viswanathan in view of Beique.[1]

The prior art relied upon by the Examiner in rejecting the claims on appeal is:

Beique et al	US 2002/149501A1	Oct 17, 2002
Viswanathan	US 2003/0011489A1	Jan 19, 2003

Appellants contend that Beique does not suggest using DMT in a downhole telemetry system because the Beique disclosure regarding the transmission scheme is too broad and therefore amounts to a teaching of "anything is possible." The Appellants reason that since the disclosure is broad it fails to satisfy the enablement requirement and does not engender a reasonable expectation of success.

[1] Appellants do not appeal the Examiner's rejection of claims 29, 33 and 36 under 35 U.S.C. § 103(a) as being unpatentable over Viswanathan in view of Shi (Brief 3).

Appellants also argue that there is no motivation to combine the teachings of Viswanathan and Beque.

ISSUES

The first issue is whether the Appellants have shown that the Examiner erred in holding that Beique suggests using DMT in a downhole telemetry system because the disclosure in Beique is too broad and therefore amounts to a teaching of "anything is possible."

The second issue is whether the Appellants have shown that the Examiner erred in holding that Beique suggests using DMT in a downhole telemetry system because the Beique disclosure is too broad and thus fails to satisfy the enablement requirement and does not engender in a person of ordinary skill in the art a reasonable expectation of success.

FINDINGS OF FACT

Claim 1 recites a surface modem and a downhole modem that communicate using DMT. Appellants' specification teaches that DMT is an extension of quadrature amplitude modulation [paragraph 0037].

Viswanathan discloses a logging system for two way communication of signals between the logging tools disposed in the wellbore and a recording and control system located at the earth's surface [paragraph 0003]. Conventional cables are used for the two way transmission of signals, the upward communication comprised data recorded by the logging tools and the downward communication comprises control commands to the logging tools [paragraph 0004]. The two way communication is accomplished by utilizing DMT [paragraph 0024].

Beique discloses a method for collecting data regarding geological properties of underground formations in the vicinity of a well bore [paragraph 0001]. Beique discloses cables 96, 98 for carrying information/commands between the surface and the underground formation [paragraph 0049]. Beiques also discloses that the information and commands can be sent using any information transmission scheme including amplitude modulation or any other modulation scheme [paragraph 0051]. Alternatively, the communication between the surface and the underground may be by radio frequency which may be modulated in any of the ways described above [paragraph 0052].

ANALYSIS

We do not find the Appellants' argument that the Examiner erred in holding that Beique suggests using DMT in a downhole telemetry system persuasive because the disclosure in Beique is too broad and therefore amounts to a teaching of "anything is possible." It is true that Beique discloses that any transmission scheme or any modulation scheme can be utilized. However, Beique specifically discloses that amplitude modulation can be used. DMT is a form of amplitude modulation, and thus the Beique disclosure is not broad at all with respect to amplitude modulation.

We do not find Appellants' argument that the Examiner erred in holding that Beique suggests using DMT in a downhole telemetry system because the Beique disclosure is too broad and it fails to satisfy the enablement requirement persuasive. "Enablement requires that 'the prior art reference must teach one of ordinary skill in the art to make or carry out the claimed invention without undue experimentation.'" *Elan Pharms., Inc.*

v. Mayo Found., 346 F.3d 1051, 1054, 68 USPQ2d 1373, 1376 (Fed. Cir. 2003) (remanding the case to the district court for a determination of whether the prior art reference enabled persons of ordinary skill to make the invention without undue experimentation)(citing *Minnesota Mining and Manufacturing Co. v. Chemque, Inc.,* 303 F.3d 1294, 1301, 64 USPQ2d 1270, 1278 (Fed. Cir. 2002) and *Enzo Biochem, Inc. v. Calgene, Inc.,* 188 F.3d 1362, 1369, 52 USPQ2d 1129, 1134 (Fed. Cir. 1999)("Whether undue experimentation would have been required to make and use an invention, and thus whether a disclosure is enabling under 35 U.S.C. § 112, ¶ 1, is a question of law that we review de novo, based on underlying factual inquiries that we review for clear error.")).

The factual premises of the enablement analysis were addressed in *In re Wands,* 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988). The court explaining that determination of whether the requisite amount of experimentation is undue may include consideration of:

> (1) the quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims.

See Amgen, Inc. v. Chugai Pharm. Co., 927 F.2d 1200, 1213, 18 USPQ2d 1016, 1027 (Fed. Cir. 1991) (stating that the Wands factors are illustrative, not mandatory and that what is relevant to an enablement determination depends upon the facts of the particular case).

Furthermore, "[w]hether undue experimentation is needed is not a single, simple factual determination, but rather is a conclusion reached by weighing many factual considerations. *Wands,* 858 F.2d at 737, 8 USPQ2d at 1404.

The Appellants have not addressed any of the *Wands* factors listed above. In fact, the Appellants have not addressed the issue of undue experimentation at all. Therefore, the Appellants have failed to establish that the Beique reference is non-enabling.

We are also not persuaded by Appellants' argument that the Beique disclosure would not have engendered in a person of ordinary skill in the art a reasonable expectation of success, because the differences between DMT communications in downhole wireless channels and DMT communications in wired channels is not appreciated by Beique. Appellants argue that these differences relate to bandwidth limitations, severe dispersion and non-flat noise spectra. We agree with the Examiner that the differences listed are also present in the other modulation schemes discussed by Beique. Therefore, as Beique discloses that the other modulation schemes disclosed can be sent wirelessly, one of ordinary skill in the art would have a reasonable expectation of successfully sending DMT wirelessly as well.

In view of the foregoing, we will sustain the Examiner's rejection of claims 1 to 9 and 29 to 36 under 35 U.S.C. § 103(a) as being unpatentable over Viswanathan in view of Beique.

The decision of the Examiner is affirmed.

AFFIRMED

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