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. 23

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte NEZAR AHMED
and
NAGU SRINIVAS

Appeal No. 2002-2232
Application No. 09/174,032

ON BRIEF

Before LEE, MEDLEY, and MOORE, *Administrative Patent Judges*.

MOORE*, Administrative Patent Judge.*

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 from the final rejection of claims 29-32 and 37. Claims 1-28 and 33-36 have been canceled. Thus, only claims 29-32 and 37, which have been finally rejected, are before us on this appeal. Claims 37 and 31 are representative. They read as follows.

37. A method of on-line analysis of location of partial discharge events during operation of an a.c. power system in which a.c. power is being applied through a cable to a load, comprising the steps of:

(a) detecting the cable high frequency electromagnetic pulses generated by partial discharge events in the power system caused by continuing application of a.c. power to the system,

(b) analyzing said pulses detected in said step (a) in the frequency domain to identify a frequency component of greatest magnitude in said pulses and the frequency of said component,

(c) analyzing pulses detected in step (a) in the time domain at the frequency of said component identified in said step (b) to determine a phase relationship between said frequency component and cycles of a.c. power in the system,

(d) identifying location of partial discharge events in the power system as a function of said frequency component identified in said step (b) and said phase relationship identified in said step (c),

(e) determining a phase relationship between pulses detected in said step (a) and the a.c. power being applied to said system, and

(f) determining a type of fault in said system that causes said partial discharge events as a function of said phase relationship determined in said step (e).

31. The method set forth in claim 30 wherein said step of filtering said high frequency pulses includes the steps of: (a1) detecting high frequency signals in the surrounding atmosphere within said selected frequency range, and (a2) subtracting said signals detected in said step (a1) from said pulses.

The References

In rejecting the claims under 35 U.S.C. § 103(a), the examiner relies upon the following references:

Rokunohe et al. (Rokunohe) 5,982,181 Nov. 9, 1999

Sedding et al. (Sedding) 5,475,312 Dec. 12, 1995

The Rejections

Claims 37, 29 and 30 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Rokunohe.

Claims 31 and 32 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Rokunohe in view of Sedding.

The Invention

The invention relates to the detection of partial discharge events in power systems such as cables, motors, and transformers. More particularly, the invention relates to the detection of partial discharge events on-line while the power system is in operation. (Specification, page 1, lines 1-3). Further details of the claimed invention are seen with reference to the claims reproduced above.

The Rejection of Claims 37, 29, and 30 Under 35 U.S.C. § 102(e)

The examiner has found that Rokunohe discloses:

(a) detecting in a cable high-frequency electromagnetic pulses generated by partial discharge;

(b) analyzing the pulses in the frequency domain to identify a frequency component of greatest magnitude and the frequency of the component;

(c) analyzing the pulses in the time domain at the frequency to determine the phase relationship between the frequency and cycles of the alternating current;

(d) identifying the location of the partial discharge events as a function of frequency and phase relationship;

(e) determining a phase relationship between pulses and the alternating current applied to the system; and

(f) determining a type of fault in the system that causes partial discharge events as a function of the relationship of step (e). (Examiner's Answer, page 4, line 14 - page 5, line 7).

The appellants, on the other hand, assert that Rokunohe does not anticipate the subject matter of claim 37. (Appeal Brief, page 16, last line). The principal contention is that claim elements (b) – (f) are lacking In Rokunohe (Appeal Brief, page 16, lines 8-20) and that the Rokunohe system is offline (Reply Brief, page 3, lines 10-18).

Initially, we note that claims undergoing examination are given their broadest reasonable construction consistent with the specification. See Burlington Industries v. Quigg, 822 F.2d 1581, 1583, 3 USPQ2d 1436, 1438 (Fed. Cir. 1987), In re Prater, 415 F.2d 1393, 1404-05, 162 USPQ 541, 550-51 (CCPA 1969).

Claim 37 as written incorporates two different methods of online detection; the localization of partial discharge events as set forth in elements (a) through (d) and the determining of type of fault as set forth in steps (a), (e), and (f). No particular order of the two different methods is required, although it appears necessary that step (a) be followed by step (b) then step (c) then step (d) for localization, while step (a) be followed by step (e) then step (f) for determining the type of fault.

Generally, the preamble does not limit the claims. DeGeorge v. Bernier, 768 F.2d 1318, 1322 n.3, 226 USPQ 758, 764 n.3 (Fed. Cir. 1985). However, the preamble may be limiting "when the claim drafter chooses to use both the preamble and the body to define the subject matter of the claimed invention." Bell Communications Research, Inc. v. Vitalink Communications Corp., 55 F.3d 615, 620, 34 USPQ2d 1816, 1820 (Fed. Cir. 1995). If the preamble is "necessary to give life, meaning and vitality" to the claim, then the claim preamble should be construed as limiting. Kropa v. Robie, 187 F.2d 150, 152, 88 USPQ 478, 480-81 (CCPA 1951). This is determined "on the facts of each case in view of the claimed invention as a whole." In re Stencel, 828 F.2d 751, 754, 4 USPQ2d 1071, 1073 (Fed. Cir. 1987); see also Applied Materials, Inc. v. Advanced

Semiconductor Materials Am., Inc., 98 F.3d 1563, 1572-73, 40 USPQ2d 1481, 1488 (Fed. Cir. 1996) ("Whether a preamble stating the purpose and context of the invention constitutes a limitation . . . is determined on the facts of each case in light of the overall form of the claim, and the invention as described in the specification and illuminated in the prosecution history.").

In the present method claim, the preamble sets forth the context of the operational method steps and the steps reference the preamble elements. Thus, we conclude that in this instance, the preamble is limiting. The claimed method is limited to on-line analysis of location of partial discharge events during operation of an a.c. power system in which a.c. power is being applied through a cable to a load.

The examiner does not expressly state whether Rokunohe is on-line or off-line. The appellants assert that Rokunohe must be off-line (not on-line, as recited in the preamble of claim 37) because an antenna is needed and discharge signals are input into the system (Reply Brief, page 3, lines 11-18).

We do not have the benefit of the examiner's position on whether Rokunohe is on-line or off-line *ab initio* or vis-à-vis the appellants' argument presented for the first time on appeal.

However, the initial burden of establishing a prima facie basis to deny patentability to a claimed invention, regardless of the ground, rests with the examiner. See In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). The examiner has not shown where the claimed requirement of an on-line system is present. Anticipation under 35 U.S.C. Section 102(e) requires that "each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." Verdegaal Bros., Inc. v. Union Oil Co., 814 F.2d 628, 631, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987).

Consequently, we must reverse this rejection.

The Rejection of Claims 31 and 32 Under 35 U.S.C. § 103(a)

Claims 31 and 32 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Rokunohe in view of Sedding. More specifically, the examiner has found that Sedding discloses detecting high frequency pulses in the surrounding atmosphere within said selected frequency range, and subtracting said signals detected from said pulses for the purpose of eliminating the need for expert interpretation (Examiner’s Answer, page 6, lines 8-12).

This finding of the examiner is incorrect. Although Sedding bemoans the expense of an expert to interpret discharge

analysis results (column 1, lines 55-57) we are unable to substantiate the remainder of the examiner's finding within the Sedding disclosure.

Accordingly, we shall reverse this rejection as the examiner has failed to provide convincing evidence that the method steps (a1) and (a2) are within the cited prior art, as well as for the reasons stated previously for reversing the 35 U.S.C. §102(e) rejection over Rokunohe alone.

Summary of Decision

The rejection of claims 37, 29, and 30 under 35 U.S.C. § 102(e) over Rokunohe is reversed.

The rejection of claims 31-32 under 35 U.S.C. §103(a) over Rokunohe in view of Sedding is reversed.

REVERSED

JAMESON LEE Administrative Patent Judge	)	
SALLY C. MEDLEY Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
JAMES T. MOORE Administrative Patent Judge	)	

JTM:yrt

REISING ETHINGTON BARNES KISSELE
LEARMAN & McCULLOCH P.C.
Columbia Center
201 W. Big Beaver, Suite 400
Troy, MI 48099-4390