UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte FAIZ FEISAL SHERMAN, VLADIMIR GARTSTEIN, KENDAL WILLIAM KERR, and JIM ALLEN MCCURDY

Appeal 2007-2704
Application 10/832,221
Technology Center 2800

Decided: January 9, 2008

Before JOSEPH F. RUGGIERO, MAHSHID D. SAADAT, and ROBERT E. NAPPI, *Administrative Patent Judges*.

SAADAT, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

This is a decision on appeal under 35 U.S.C. § 134(a) from the Examiner's final rejection of claims 1-17, 19, and 20, which are all of the claims pending in this application as claim 18 has been canceled. We have jurisdiction under 35 U.S.C. § 6(b).

Appellants' invention relates to measurement sensors for measuring a substrate property, such as the internal and external moisture content of a

substance forming the substrate (Specification 1). According to Appellants, the resonant frequency of a high-Q LC circuit is changeable in response to the moisture content of the substrate positioned proximate to the capacitor of the LC circuit (Specification 2). An understanding of the invention can be derived from a reading of exemplary independent claim 1, which is reproduced as follows:

> 1. A device for measuring the moisture content of a substrate, comprising:
>
> a high-Q LC circuit having a resonant frequency, said LC circuit comprising a high-Q inductor and a capacitor; and,
>
> a high frequency signal generator electrically coupled to said LC circuit, said high frequency signal generator being operable to couple power to said capacitor; and,
>
> a fiber matrix modification unit;
>
> wherein said resonant frequency of said LC circuit is changeable in response to said moisture content of said substrate when said substrate is placed within said fiber matrix modification unit and proximate to said capacitor and,
>
> wherein said circuit has a shiftable resonance curve.

The Examiner relies on the following prior art references:

Odessey	US 2,422,742	Jun. 24, 1947
Meyer	US 4,361,801	Nov. 30, 1982
Diekhans	US 6,327,899 B1	Dec. 11, 2001
Sainomoto	JP 4193203 A2	July 13, 1992

The rejections as presented by the Examiner are as follows:

1. Claims 1-3, 7-10, 12-17, and 20 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Odessey.

2. Claims 4 and 5 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Odessey and Diekhans.
3. Claims 6 and 19 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Odessey and Meyer.
4. Claim 11 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Odessey and Sainomoto.

Rather than reiterate the opposing arguments, reference is made to the Brief and the Answer for the respective positions of Appellants and the Examiner. Only those arguments actually made by Appellants have been considered in this decision. Arguments which Appellants could have made but chose not to make in the Brief have not been considered (37 C.F.R. § 41.37(c)(1)(vii)).

We affirm.

ISSUE

The issue is whether Appellants have shown that the Examiner erred in rejecting the claims under 35 U.S.C. §§ 102(b) and 103(a). Appellants' arguments focus on the claimed limitation related to the circuit having a shiftable resonance curve (Br. 4-5). Specifically, the issue is:

> whether the variable resonance frequency in Odessey is the same as the claimed subject matter including the circuit having a shiftable resonance curve.

FINDINGS OF FACT

The following findings of fact (FF) are relevant to the issue involved in the appeal and are supported by a preponderance of the evidence.

1. Appellants' claim 1 requires a high-Q LC circuit having a resonance frequency, wherein the resonance frequency is changeable in

response to the moisture content of a substrate and the circuit has a shiftable resonance curve.

2. Appellants in their Specification describe the resonance curve and its shift as follows:

> As shown in FIGS. 11A-11C, the resonance curves 119 of the high resonant, high-Q circuit 112 can be used to measure the moisture content of a substrate. In this regard, a fixed frequency inserted into LC circuit 115 can generate the exemplary resonance curve 119a, shown in FIG. 11A. Exemplary resonance curve 119a thereby shows an open-circuit value (i.e., no substance is present proximate to capacitor 117 wherein the output of AC/DC detector 118 provides a signal to the left of the resonant peak 120a. As shown in FIG. 11B, upon the introduction of a substrate containing less than 50 percent, preferably less than 10 percent, more preferably less than 1.0 percent, even more preferably less than 0.5 percent, and most preferably no moisture into LC circuit 115 proximate to capacitor 117, it can be observed that resonance curve 119b and resonant peak 120b shift to the left with respect to the fixed frequency input into LC circuit 115.

Specification 11:15-25.

3. Odessey discloses a method for measuring variable electrical conditions related to the measurement of the moisture content of a substrate placed between the plates of a capacitor based on the beat or resonance frequency due to the change in the capacitance (col. 1, l. 1-10 and 23-27; col. 3, ll. 5-12).

4. In measuring capacitance, Odessey adjusts the frequency to a standard or fixed value using an empty test cell and calibrates the capacitance by placing a known weight of substance between the plates of the capacitor (col. 7, ll. 25-40).

5. The resonant circuit of Odessey is further described as tuned to have maximum deflections at about 200 cycles apart (col. 9, ll. 29-36), which provides a sharper tuning (col. 8, ll. 43-46).

6. The measuring circuit of Odessey is initially adjusted to this condition with an empty test cell which produces a different frequency once the sample is inserted between the capacitor plates. The difference between the two settings of the calibrated C_1 capacitor is a measure of the capacity change introduced by the sample under test and hence, a measure of its moisture content (col. 9, ll. 56-66).

PRINCIPLES OF LAW

1. Scope of claims

Absent an express intent to impart a novel meaning to a claim term, the words take on the ordinary and customary meanings attributed to them by those of ordinary skill in the art. *Brookhill-Wilk 1, LLC v. Intuitive Surgical, Inc.*, 334 F.3d 1294, 1298 (Fed. Cir. 2003). The claim construction analysis begins with the words of the claim. *See Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996). Claims will be given their broadest reasonable interpretation consistent with the Specification, and limitations appearing in the Specification are not to be read into the claims. *In re Etter*, 756 F.2d 852, 858 (Fed. Cir. 1985).

2. Anticipation

A rejection for anticipation requires that the four corners of a single prior art document describe every element of the claimed invention, either expressly or inherently, such that a person of ordinary skill in the art could practice the invention without undue experimentation. *See Atlas Powder*

Co. v. IRECO Inc., 190 F.3d 1342, 1347 (Fed. Cir. 1999); *In re Paulsen*, 30 F.3d 1475, 1478-79 (Fed. Cir. 1994).

ANALYSIS

1. 35 U.S.C. § 102 Rejection

Appellants' position with respect to the teachings of Odessey is that the prior art measurement is done by comparing two resonance frequencies along a fixed resonance curve whereas the claimed invention measures moisture content by comparing the measured overall shift of a resonance curve and resonance peak in transition from the baseline condition (Br. 4). Determining the scope of the claims by looking at the words recited in the claims, we find that claim 1 merely requires the resonant frequency of the LC circuit be changeable in response to the moisture content of a substrate placed proximate to the capacitor of the LC circuit. The Examiner correctly points out that the claimed "shiftable resonance curve" merely relates to the disclosed shift in resonance frequency as the moisture content of the sample changes the capacitance value, similar to the change in resonance frequency in the device disclosed in Odessey (Answer 6). Based on a review of Appellants' disclosure, we agree with the Examiner that Appellants' attempt to characterize Odessey's circuit as having a "fixed resonance curve" is not supported by evidence indicating any differences in the circuitry and how the moisture content is measured (FF 1-2).

Giving the broadest reasonable interpretation to the claimed change in the resonance frequency of the LC circuit and a "shiftable resonance curve," we find that the change in the resonance frequency of Odessey reads on the subject matter recited in claim 1. Odessey describes measuring moisture

content of a substrate placed between the plates of a capacitor by measuring the change in resonance frequency due to capacitance change in the LC circuit (FF 3). Contrary to Appellants' arguments that Odessey teaches only the comparison of two resonance frequencies along a fixed resonance curve (Br. 5), Odessey not only is silent with regard to a "fixed resonance curve," but also uses the above mentioned "comparison" only for calibration purposes (FF 4-6). Therefore, the change in the resonance frequency in Odessey is in response to the moisture content of the substrate placed between the capacitor plates, as recited in claim 1.

We also disagree with Appellants (Br. 5) that Odessey only teaches a shift in the *resonance frequency* rather than a shift in the *resonance curve*. Appellants' claim 1, although reciting a shiftable resonance curve, merely requires the resonance frequency be changeable for measuring the moisture content of a substrate (FF 1). As argued by the Examiner (Answer 7), Appellants have pointed to no portion of the disclosure, nor have they provided any evidence in support of such distinction or its relation to a changeable resonant frequency of the LC circuit.

In view of the analysis above, we find that Odessey prima facie anticipates claim 1 as the reference teaches all the recited features. Additionally, we note that Appellants do not argue claims 2, 3, 7-10, 12-17, and 20 separately from their base claim and thus, allow these claims to fall with claim 1.

2. 35 U.S.C. § 103 Rejection

With respect to the rejection of the remaining claims, Appellants rely on similar arguments discussed above and merely assert that each of the references applied in combination with Odessey fails to teach or suggest the

measurement of a shiftable resonance curve and thus, cannot cure the deficiencies of Odessey. Accordingly, as Appellants fail to point to any error in the Examiner's position with sufficient particularity and in view of our discussion above, we remain unconvinced by Appellants' arguments that the Examiner erred in rejecting claims 4 and 5 over Odessey and Diekhans, claims 6 and 19 over Odessey and Meyer, and claim 11 over Odessey and Sainomoto.

CONCLUSION

On the record before us, Appellants have failed to show that the Examiner has erred in rejecting the claims or the rejection is not supported by a legally sufficient basis for holding that Odessey anticipated the claimed subject matter of claims 1-3, 7-10, 12-17, and 20 or rendered obvious the remaining claims. In view of our analysis above, we sustain the 35 U.S.C. § 102 rejection of claims 1-3, 7-10, 12-17, and 20 over Odessey, and the 35 U.S.C. § 103 rejection of claims 4-6, 11, and 19 over Odessey in various combinations with Diekhans, Mayer, and Sainomoto.

DECISION

The decision of the Examiner rejecting claims 1-3, 7-10, 12-17, and 20 under 35 U.S.C. § 102 and of claims 4-6, 11, and 19 under 35 U.S.C. § 103 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a)(1)(iv).

AFFIRMED

tdl/gw

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